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THE JOURNAL OF Domestic Appliances AND SEWING MACHINE GAZETTE.

Vol. XI., No. 150.

3-1, 392.
JANUARY 1, 1883.

Price, with Supplement, 4d.

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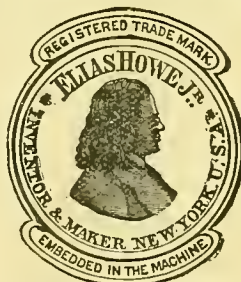
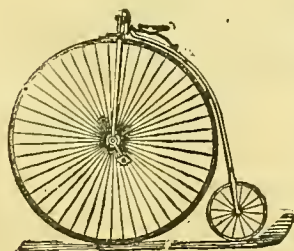
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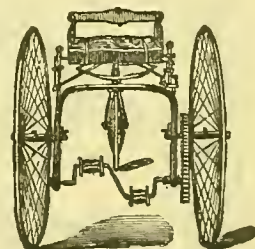


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AND

Sewing Machine Gazette.

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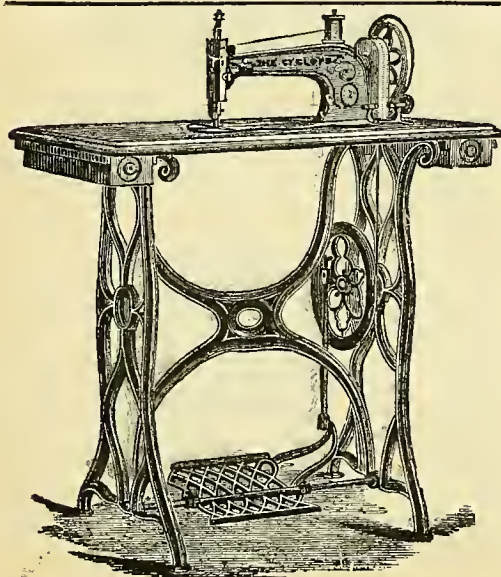
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(Signed) E. M. ROE,
CHAS. BURNEY.

Royal Military Asylum, Chelsea, London, Jan. 7, 1881.

Having had three years experience with your sock Knitting Machines, I cannot speak too highly of them, both with and without the Ribbing Attachment. They give every satisfaction, and, considering they are worked here entirely by boys, they keep in most excellent order.

(Signed) W. MACDONNELL,
Quartermaster.

The Workhouse, Great Yarmouth, January 8th, 1881.

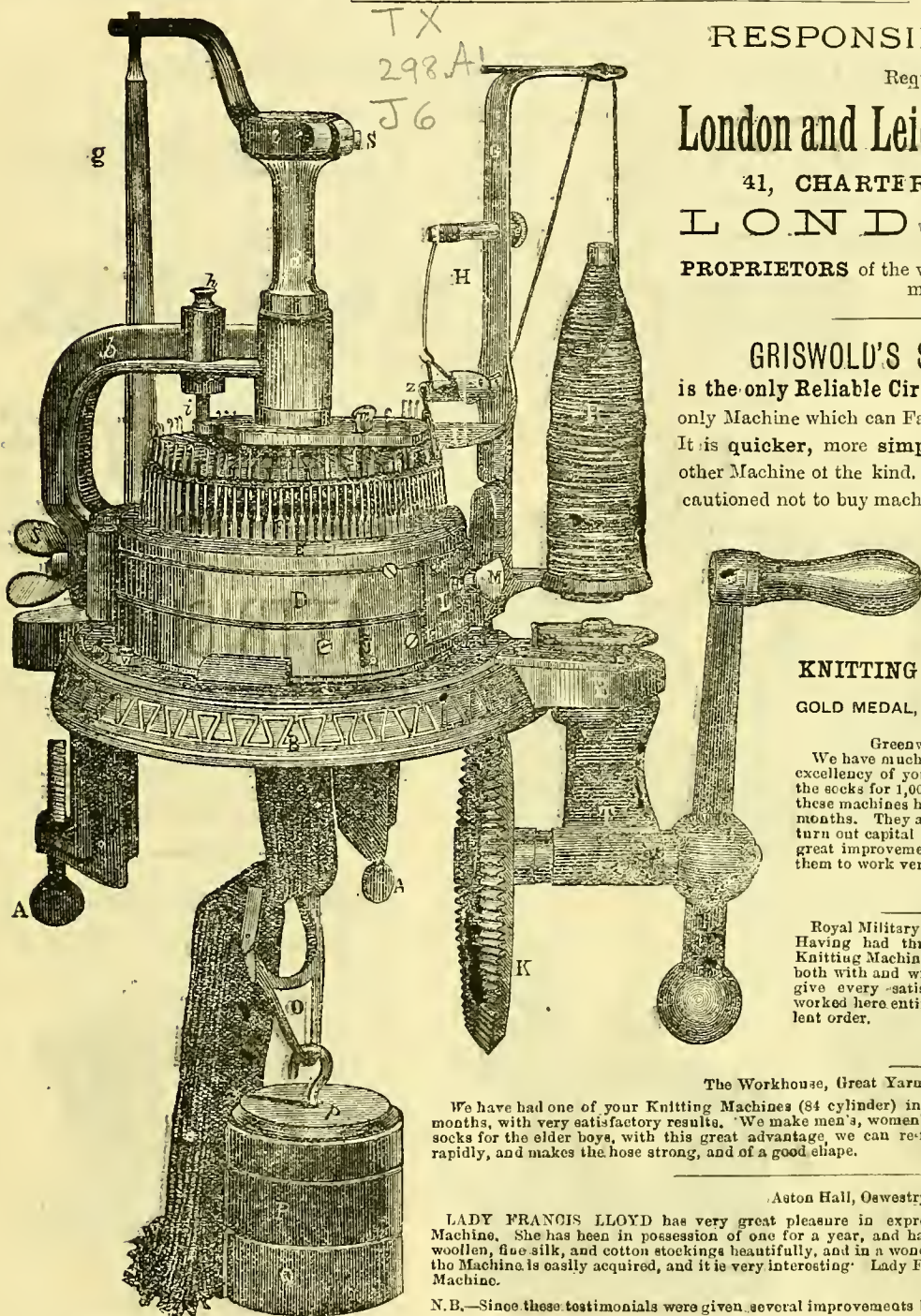
We have had one of your Knitting Machines (84 cylinder) in use in our workroom about twelve months, with very satisfactory results. We make men's, women's, and girls' cotton ribbed Hosiery, also socks for the elder boys, with this great advantage we can re-foot them when necessary. It work rapidly, and makes the hose strong, and of a good shape.

(Signed) E. S. BLYTH, Matron.

Aston Hall, Oswestry, January 7th, 1881.

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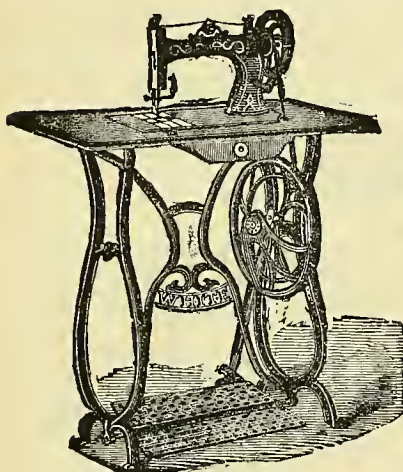
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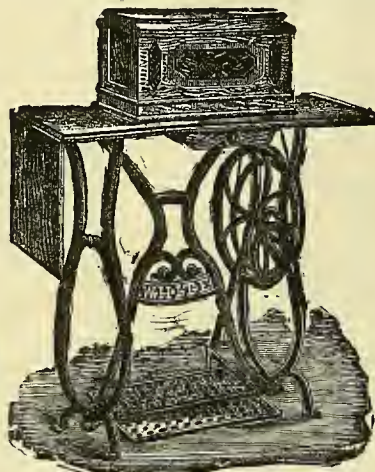
Manufacturers of the justly Celebrated

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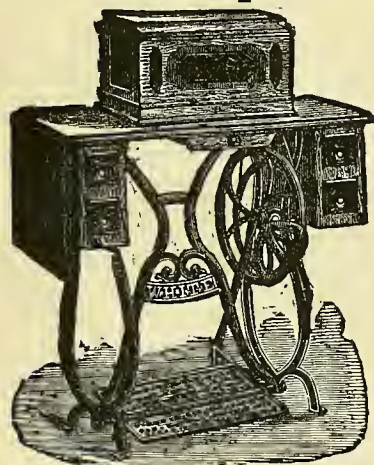
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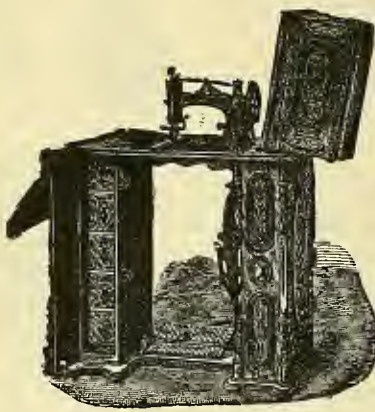
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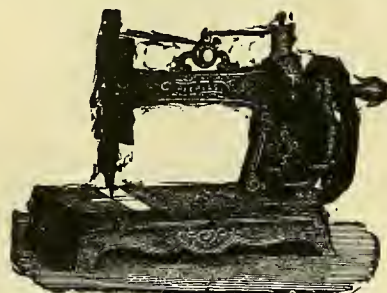
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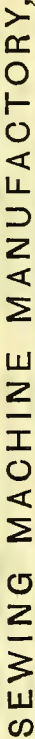
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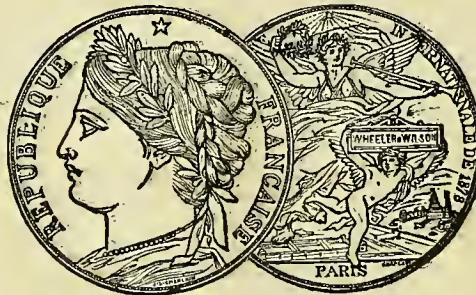
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THE "UNIVERSAL" KNITTING MACHINE.

BY HER MAJESTY'S

ROYAL LETTERS PATENT.

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With an ordinary amount of knowledge can learn to work this Machine in **THREE LESSONS**, and can make **A GOOD INCOME** by Knitting Hosiery upon it, as from $1\frac{1}{2}$ to $2\frac{1}{2}$ dozen pairs per day can be made.

THE MACHINE

Will last a life time, and cannot get out of order with fair usage, as it always makes a perfect stitch and drop stitches are next to impossible.

This cannot be said of any other Knitting Machine yet invented.

OPINION OF THE PRESS.

"A machine which requires only to be better known, to become much appreciated, is the above. It is a marvellous piece of mechanical skill, and has taken many years of patient study to bring it to its present state of perfection." — *Sewing Machine Gazette*.



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Far surpasses, in every way, all other known Machines, and cannot fail, by its extraordinary merits, to recommend itself to every household and to hosiery manufacturers. It is so simple to learn and work that a child can become proficient in a few lessons and its wonderful speed is such that a full-sized sock can be made in ten minutes, plain or ribbed. The public are invited to call and see this statement verified.

Price of Machine, complete with appliances, £9 9s. 0d.

Any person can make this Machine pay for itself in a few weeks, and full particulars how to proceed will be given on personal application to the

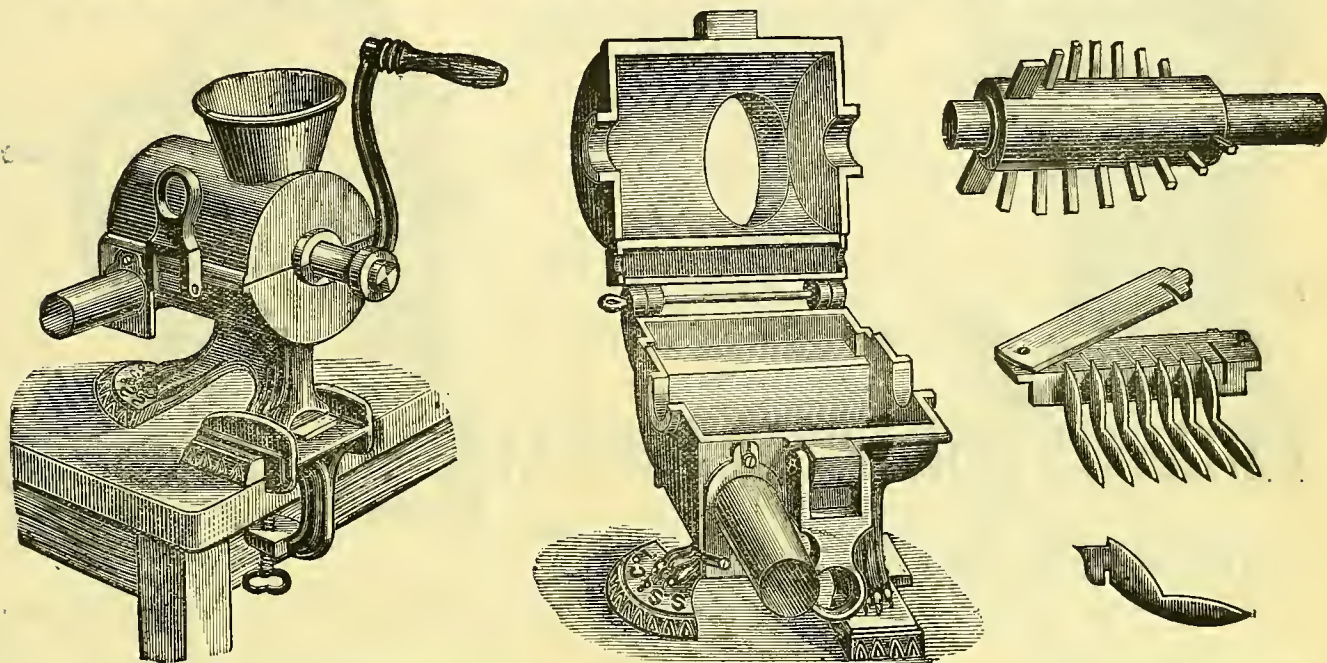
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OR OF THEIR AGENT

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Mr. GIMSON is manufacturing by this machine with considerable success, and will forward terms, Samples, &c. on application to the Trade (Sewing Machine Dealers should keep stock) and thus enable them to show actual work done by the machine.

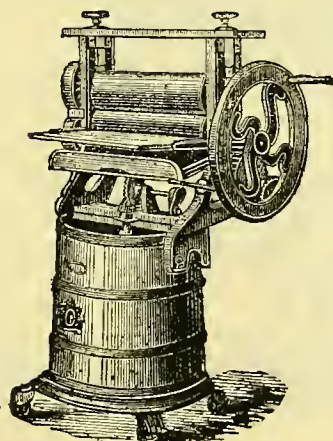
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The knives are held in position by dropping them separately into slots cut in a moveable knife bar, and are efficiently prevented from moving by means of a swivelling top plate, which covers the slots, thus preventing any substance getting into them. The knives are interchangeable, and, having two separate blades, they mince the meat in one half the time and twice as fine as the ordinary mincing machines. The revolving cutters are square steel teeth, or pins, with sharp edges fitted into a solid roller. All metals injurious to the health are avoided—no lead, tin, or zinc being used. The machines are of iron, enamelled and of best finish, and fasten to the table by means of a clamp, the knives being of the best cast steel.

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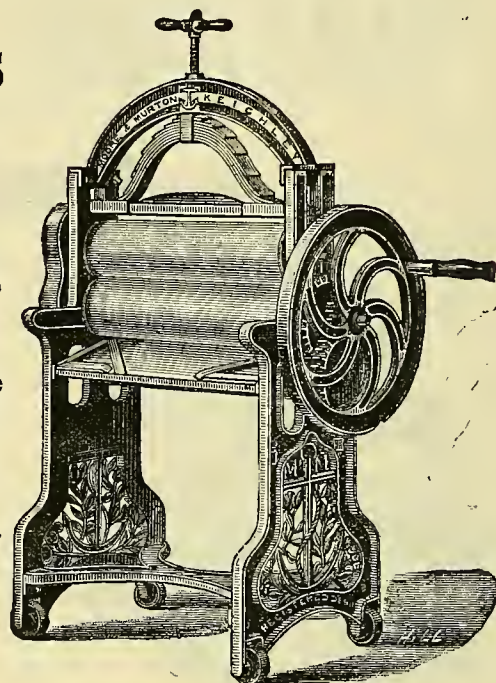
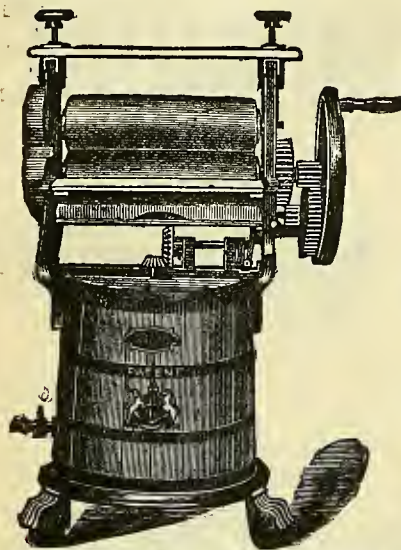
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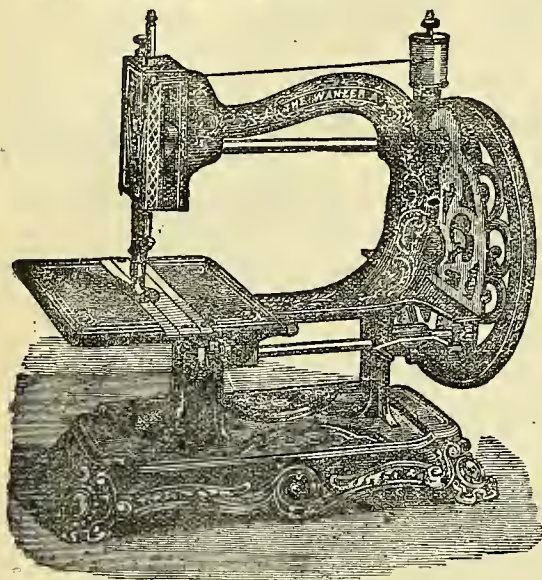
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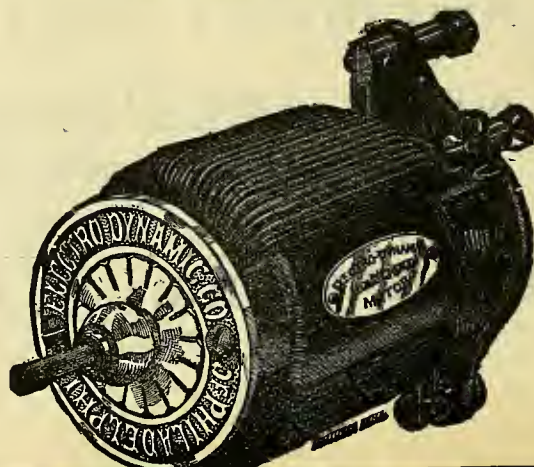
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COMMENTS OF THE MONTH.

COLONIAL IMPORT DUTIES.

THE continuation of the returns as to the rates of import duties levied abroad upon British products, there has lately been issued a statement of the duties now imposed by our principle colonies. It is prefaced by the following summary of the most important changes made in the various tariffs since the issue of the former return in 1830:—"In India all import duties have been abolished except on arms and ammunition, alcoholic liquors, salt, and opium, and the only export duty now levied is upon rice. In Tasmania, hardware is now charged 10 per cent. ad valorem, instead of specified duties of 2s. 6d. and 5s. per cwt, which were equivalent to about $7\frac{1}{2}$ per cent. ad valorem. Drapery and tissues are also brought under the 10 per cent. rate, instead of being entered by the cubic foot, the change representing an increase of about $1\frac{1}{2}$ per cent. ad valorem. The ad valorem rates in the Australian colonies generally remain unchanged, except in West Australia, where hardwares previously free are rated at 10 per cent., and the unenumerated rate, which includes tissues, &c., is raised from 10 per cent. to $12\frac{1}{2}$ per cent. ad valorem. In the Northern territory of South Australia, Customs duties, which were abolished in 1875, have been reimposed upon certain articles. In the Dominion of Canada duties have been reduced in several directions. The principal articles affected, tea and coffee, are now admitted free from this country. On the other hand the rates upon common window-glass and silvered glass plate have been increased from 20 per cent. to 30 per cent. ad valorem. It is estimated that these changes will reduce the amount of import duty levied in the Dominion by about a million dollars. In Jamaica, 10 per cent. additional on the amount of all duties levied has been imposed. In British Guiana the ad valorem unenumerated rate, which includes about half the imports from this country, is raised from 5 per cent. to 10 per cent."

COURTS OF JUSTICE.

THE "Palace of Justice" opened during the month, will, notwithstanding the pretentious name that has sometimes been given to it, hardly vie successfully with the buildings which served a like purpose in much more primitive times. No colossal statue of Justice holding the sword and scales imposes awe upon the visitor who finds himself in these precincts; no apparitors with shining spears or halberds attest the invincible strength of the judicial arm. Even the scarlet and ermine which impress rustic audiences at the assizes will seldom impart their show of dignity to occupants of the bench; [and the dingy accessories of a law court are relieved by few features either architectural or decorative calculated to inspire profound respect. It was different in the old times, when law represented a moral and material victory over the reign of brute force, and men took care to display with ostentation the troops and weapons by which the triumph was secured. A law court in ancient Rome, or even in mediæval England, was a more lively and showy scene than we see now, even when the sentences and judgments were not pronounced in a grand building called a palace.

In Rome the law courts were held in porticoes at the side of the Forum, but these had roofs over them, though the ends, and in early times the sides also, were open to the outer air. But a Roman law court or *basilica* in the Imperial times was an exact prototype of the common form of Christian parish church; and in fact it was those very courts which were first converted to the use of the Christian congregations. A double row of pillars separated the nave from the side aisles, and over these a gallery was carried, in which spectators might stand, the men being on one side and the women on the other. At one end was the chancel, often called *chalcidica*, railed off for the presiding magistrate, the jury, advo-

cates, and witnesses, and also for distinguishing visitors, who, as in our own law courts, often came in and sat by the side of the president. But the ceiling was always of the kind known as "coved," that is to say flat in the middle with an arched space extending upwards to it from all the four walls.

The Jewish legal system being as complete as we know that it was, it seems extraordinary that we should have so scanty an account of the places in which it was administered. But in early times the kings and judges and their provincial delegates sat and delivered judgement "in the gates" of the cities, where all men, natives or foreigners, could have easy access to them. The Shanhedrim, or Grand Court of Appeal, had, however, a fixed place of jurisdiction close to the precincts of the Temple, and its order of sitting is supposed to have been as follows:—The seventy members of the court were ranged in a long semicircle, having the eldest man at the extreme end on the right, and the president sat behind them all, so as to have each elder in full view. It will thus be seen that the arrangement of the "bench" was much the same as that of a French Appeal Court as it may be seen sitting in the Palais de Justice on the island in the Seine. The famous palace once formed part of the Royal house or castle, and is connected intimately with the history of the Capetian line, as this family, while still having only the rank of Counts of Paris, had fortified and inhabited this singular stronghold. The palace was again and again burnt down; and its present buildings occupied even longer in construction than our Royal Courts, for they were commenced in 1840, and, after the work had been interrupted seriously by the insurrection of 1848 were not completed till 1868. One of the great features of the edifice is now, as it had been since the fifteenth century, the elaborate clock outside, which seems to have given the hint to our own authorities for the big clock in the Strand, now unmercifully ridiculed in a popular burlesque at one of the London theatres.

TECHNICAL EDUCATION IN BELGIUM.

THOSE people who never grudge the millions spent upon war, but continually grudge the thousands spent upon instruction, would do well to ponder the facts which Mr. Swire Smith, one of the Royal Commissioners on Technical Education has just reported from Belgium. In iron and zinc, in cotton and wool, in glass and machinery the Belgians are our commercial rivals, and they more than hold their own. At the great iron and steel works of the Cockerill Company, near Liège, founded by a Lancashire man, nearly a hundred draughtsmen are employed, of whom 25 are Germans and Swiss, but there is not a single Englishman. There are free night schools attended by 2,000 boys and men, a technical school attended by 80 fitters and others, and a mining school with two hundred pupils. In this establishment as in the Veille Montagne Zinc Works, all youths under 18 are compelled to attend on pain of discharge from the works. At Verviers, where two-thirds of the woollen yarn spun is exported to England, the Free Technical School is attended by 300 students in the evenings. This school receives nearly £1000 a year from the rates, it costs £20,000, and the manufacturers and the State are uniting to build a second at a similar cost. This in a town of only 45,000 inhabitants, Liège is about to spend £160,000 on new buildings for her University, which already has 1,300 students, with evening classes attended by 5,000 more. The Technical School of Ghent has more than a thousand evening students, while the Art Academy of Antwerp gives absolutely free instruction to 800 youths. In several important industries Belgian manufacturers are beginning to drive our own out of the market; and, while Bradford and other woollen towns have suffered serious depression, the Belgian mills have been working full time. Such facts as these should convince reluctant English taxpayers that our educational expenditure is not a luxury, but a stern necessity.

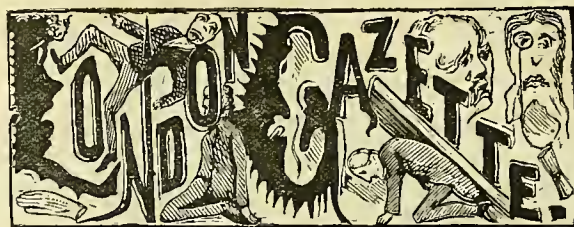
CANALS.

MANY who are interested in the Manchester Ship Canal may gather some useful information from the action of the Americans in connection with the Erie Canal, which is of far more importance to New York than ever a canal can be to Manchester. For some time, certain commodities—food staples, for instance—have been free from toll on the Erie Canal, which, it may be as well to mention, is the great water-way connecting New York with the Great Lakes and the centres of the food-producing districts of the Far West. Under the new law the Erie Canal and its tributaries will be entirely free from tolls, and the recent election in New York was notable for the enormous vote given in favour of the abolition of all taxes on the traffic through the canals. The question is of almost vital importance to the commercial supremacy of New York, for the developments of the railway system threaten a close competition with the canals. When trains could take only a bout 10,000 bushels at a time, the advantage was with the canal, boats; but with better-roads and more powerful locomotives the carrying capacity of the trains has been doubled, and, as they also run at a greater speed, the railroad practically controls the freight market. Two propositions are before the New Yorkers, one a rather bold idea, to make the Erie a ship canal throughout—a rather costly enterprise, that might not prove altogether beneficial to New York; the other, to increase the size of the locks so as to permit the use of larger boats, and to facilitate their passage by fitting the locks with lift instead of swing gates—improvements which, it is believe, will enormously increase the carrying capacity of the canal. The question has reached such a stage that it has been proposed to abandon the canal entirely, on the ground that they have outlived their period of economical usefulness; but water-carriage is likely always to remain an important commercial factor whatever may be the development of the railway. These facts are noteworthy in connection with the proposal to make a ship canal to Manchester, for it is probable that a railway would pay better. A ship canal from Liverpool to Manchester will not be easily made, and its advantages are problematical; for large vessels are not rapidly moved in narrow waters, and it is doubtful whether it will pay to tow them inland, especially as their cargoes will undergo the same process of distribution as now takes place at Liverpool. Judging from the experience of the Americans, it would seem to be more economical to lay down a special railway from the natural seaport than to create by artificial means an inland port of disembarkation.

REFORM IN COUNTY COURTS.

THE new Courts of Justice, opened during the months serve to remind us that "the powers that be" are not altogether ignorant of the fact, that in the building, which accommodate the Law, much improvement is needed. So far, so good: Justice and Equity are now conveniently housed together, in one beautiful building. But this new palace, large and spacious as it is, is only for some branches of the Law; many of our courts therefore, will remain as heretofore, small, close, stuffy, inconvenient, and unhealthy. Who can have visited our County Courts without feeling as though he would like to smash one of the windows to let in a little pure air? Surely, these need some alteration. The Law which instructs the sanitary inspector to look so sharply after the crowded work-room, would do well to free its own buildings from close and impure air. Reform too, might even go further than this, and abolish for ever from our County Courts many old forms and customs, no doubt good in their time, but, which have now become a mere farce.

The whole system of oath taking, as carried on in connection with our County Courts might with advantage be swept away. If a man intends to be dishonest, the mere putting of the Testament to the lip as the clerk rapidly mutters some words, scarcely audible, will certainly never act as a deterrent.



PARTNERSHIPS DISSOLVED.

Heiley and Sons, Birmingham, steel manufacturers.
May and Co., West Cowes (I.W.), ironmongers.
Sambridge, H. W., and Son, Birmingham, chandelier manufacturers.
Walker, C., and Piper, A., Birmingham, electroplate manufacturers.
Bayley and Sons, Poole, Dorsetshire, ironmongers; so far as regards H. Bayley.
Liwyardth Tinplate Company, Maestog, Glamorganshire; as regards Thomas Levi and David Phillips.
Martin, W., and Pinson, J. F., Wolverhampton and Birmingham, metal brokers.
Moore and Lillystone, Fighting Cocks, near Darlington, iron manufacturers.
Harrison, F. H., Teague, H., and Birch, J., ironfounders; so far as regards J. Birch.

LIQUIDATION BY ARRANGEMENT.

Jevons, G., and Wood, T. T., Liverpool and elsewhere, tinplate merchants, &c.
Phillipson, J., Louth, ironmonger.
Dollett, R. C., Thorne, brassfounder.
Thomas, S., Crabb's Cross, needle and fish-hook manufacturer.
Waterhouse, G. T., Old Kent-road, ironmonger.
Wheeler, W. G. M., Peckham Rye, ironmonger.
Wright, R., Manchester, ironmonger.
Wright, J., Darlington, ironfounder.
Bloomer, B., Gateshead, iron manufacturer.
Davies, D., Cardigan, ironmonger.
Forester, W. H., Swansea and elsewhere, iron merchant.
Griffiths, Josiah, and Jenkins, Stephen, trading as the Pontardulais Tinplate Company, Pontardulais.
Wakeman, T., Birmingham, tinplate-worker.
Aspinall, Gilchrist, and Ryman, Newington Butts, hardware merchants.
Banks, W., Willenhall, latch manufacturer.
Blake, G., Coventry, machinist.
Elshaw, J., Batley, ironmonger.
Mallinder Brothers, Sheffield, ironfounders.

BILLS OF SALE.

Mathieson, H., tinplate decorator, 31, St. Peter's-road, Mile End, for £90, to M. Davis. Filed November 16.
Brown, J., gas fitter, 39, Charlotte-street, Blackfriars-road, for £50, to E. F. Brown. Filed November 25.
Brown, J., and Brown, B., gas fitters and gas engineers, 36, Charlotte-street, Blackfriars road, for £120, to E. F. Brown. Filed November 25.
Gray, (Grey) T. D., (hy Sheriff) manufacturer of decorative tinplate, Wellfield-villa, Aberavon, Glamorganshire, for £49 19s., to E. Davies. Filed November 22.
Mallett, W., and Co., ironmonger, Trafalgar-square, Fawey, Cornwall, for £400, to A. M. Bray. Filed November 20.
Smith, J. H., sewing machine manufacturer, &c., 436, Euston-road, for £60, to H. Tyler. Filed November 24.
Collard, T., brassfounder, Horton-lane, West Drayton, for £38, to Union Deposit Bank. Filed November 30.
Willman, E., ironmonger, 7, Great Russell-street, Bloomsbury, for £100, to Bloomsbury Advance Company. Filed November 30.

LOCKS AND SAFES.*



THE distinguishing feature of the Chubb Lock was that it consisted of several separate and distinct double-acting tumblers placed over each other, capable of being raised to different heights, but all moving on a centre pin, and each requiring to be lifted to a certain fixed position before they would permit the bolt to pass. This Lock has undergone several material improvements since then, preserving however, the six tumblers as essential to it. In the first place there is the detector, for which a patent was obtained in 1819, an improvement of the most signal importance. This is a spring-lever which locks the bolt fast the moment that any one of the tumblers has been elevated an iota beyond its assigned range, and shows at once, on the application of the true key, that an attempt has been made upon it by a false instrument. The key proves an immediate rectifier by the simple re-locking, when it will command the Lock in the ordinary manner by setting the tumblers in their proper position.

"It has been suggested that the "detector," instead of giving additional security to Chubb's locks affords a partial guidance to a [skilled] person attempting to pick it. This objection holds good to a certain extent in the locks originally made, on which all the tumblers had an equal bearing against the detector-stump; but in the locks as now constructed this objection is entirely obviated, giving the tumblers an unequal bearing, whereby, if an operator feels the obstruction of the detector-stump, he cannot tell whether the tumbler which he is lifting is raised too high or not high enough. The next improvement of importance was what is called the "curtain." Of course, there is no hindrance to the insertion of pick-locks into an open keyhole, even though they should prove useless; but by this ingenious contrivance, directly any false key or pick is turned in the lock, the keyhole is closed and no other instrument can be inserted to aid the former ones. Another element of great value in these Chubb locks is that the essential parts which create the differences between the locks are made by hand, and that a very great number of changes may be made in the combinations, each lock being made to differ from every other. It is hardly credible, but it is a fact, that a three-inch Chubb lock has no fewer than 2,592,000 changes made in its combinations. A mere touch of the file will entirely change a lock: and it appears that the difficulty is to make the locks precisely alike, not to make them different. Cheap machine-made locks are of little value, simply because there are thousands of keys abroad which will open any of the same No. Apart from the bad work by which they are generally characterised, they are thus to be guarded against.

Series of locks have been constructed by Messrs. Chubb, for prisons and bridewells, to the number of from 1,500 to 2000, with master keys for the governor, deputy governor and chief warder. At any time the governor has the power of stopping out the under keys, and in case of any surreptitious attempt being made to open a lock, and the detector being thrown, none of the under keys will regulate it, so that the governor must be made acquainted with the circumstance, he alone having the power with his key to restore the lock to its proper state.

There are several safe makers of high reputation—Milner Price, Tann, Chatwood, Hobbs. Messrs. Chubb in this department of work enjoy some specialities. They have first the merit of plates case-hardened by a peculiar process; then the introduction of steel plugs and corrugated steel in such a manner as to frustrate any attempt at drilling through the iron, the edge of the drill breaking off short whenever it comes in contact with the steel; recessed doors, which present peculiar difficulties to the insertion of burglar's wedges; "and diagonal bolts," so fixing themselves into the frame of the safe as literally to become the more firmly fixed, as the more force is used to withdraw them; for, as these diagonal bolts fasten into a solid frame, which in its turn overlaps the body-plates, it is evident that if a burglar did succeed in getting a wedge past the rebate on the door, the moment the wedge was driven in

the bolts would only grip the sides of the safe the more tightly. The locks of these newest safes (some of them most ingenious, and driving out a dozen bolts at once) are backed by a special preparation of steel, in addition to the steel plugs through the front iron, which makes it impossible for the drill to be used to cut off the portion of iron in which the lock is fixed, as has been accomplished by burglars with the cheaper class of safes.

The exposed section of the finest Chubb safe may be described as consisting of four entire layers—wrought-iron, then hard steel specially prepared, wrought-iron again, and then in fireproof safes, the fire proofing, composed of a yet more incombustible chemical material (chiefly silicate) than the old admixture of sawdust and alum. The edges are throughout joined by angle-iron, rivets and screws, and all are rebated and dovetailed together. The most recent style of safe, constructed specially with a view to provide a strong safe at a cheaper rate than hitherto, may be thus described:—The frame of the safe on which the door hangs is a solid T-iron, its outer edge overlapping the body-plates, and the flange receiving behind it the bolts. Though the inner lining has no screw or rivet, yet it is most securely fastened in the process of joining the other parts. In order to increase the fire-resisting material, a tube may be introduced into the open space behind the T-iron, filled with a substance that will, on the approach of fire, cause steam to be injected into the interior of the safe.

Mr. George H. Chubb, in his book, "Protection from Fire and Thieves," gives the following passage with reference to the superiorities of the new fire-proofing material:—

"At one time tubes of glass, or fusible metal, containing alkaline solutions, were embedded in the sawdust, and were supposed to burst at given temperature; but it was found that the glass accidentally broke, or the fusible metal became corroded, and allowed the liquid to escape, thus damping the contents of the safe. But the mixture of alum with sawdust is open to two objections; owing to the hygroscopic nature of sawdust the alum is liable to decomposition, thereby, producing a certain moisture in the safe; and secondly, there is of course, a limit to the production of moisture from the alum when under the action of fire, after which the sawdust will become gradually dry, and although it may not actually ignite, it will become charred, and even red-hot, under sufficiently continued heat. It is but fair, however, to say that such instances of continued heat are but rarely probable; yet I prefer and use an incombustible material, which is very light and absorbent and which does not possess the bad qualities of sawdust, but which is more expensive. Supposing the alum to become exhausted, there still remains the protection of a substance which is both infusible and a bad conductor of heat."

Looking at one of the finest of these safes, so compact, solid, carefully finished, one is almost tempted to recall the epithet ungainly or "ugly" as applied to safes. As one gets more and more acquainted with the process of manufacture, perfect adjustment of parts, and exact adaptation of every portion to its end, one actually begins to look at the iron safe as if it had some promise of a thing of beauty.

The quadrangle lock, which Messrs. Chubb for many years attached to their safes, was an admirable example of complex mechanism reduced to simple principles. It was really four locks in one. The main bolts were attached to an eccentric wheel, throwing them each way; and to these bolts ten or twenty lock heads might be fitted. This lock had six levers in each set, making altogether twenty-four levers, all of which had to be acted on simultaneously, by the motion of the proper key, before the eccentric wheel could be turned. By a very ingenious contrivance, which threw the wheel into the centre, the safe-lock with diagonal bolts—which has now become such a marked feature in the Chubb safes—was attained; and this remains the most efficient, as it is the most simple, of the Messrs. Chubb's many achievements.

In connection with safes, we should not forget to mention the valuable inventions in powder-proof locks that are due to Messrs. Milner, Middleton and Price.

*From "Industrial Curiosities."

Among the many practical suggestions given by Mr. Price in his closing chapter of "Useful Hints," which we shall make bold to extract here because everybody can, at all events, wisely and profitably put it in practice on occasion, is the following;—

"Under no circumstances use violence when a lock does not act properly. Violence will always do harm, whilst a little patience in 'humouring' it will, in nine cases out of ten, enable the key to perform its office. The majority of locks, if they are to go well are like watches, they must have some degree of careful treatment. Instances are not uncommon of persons who have iron safes, in the possible event of the lock 'taking to go wrong,' putting an instrument (as a piece of iron) through the bow of the key to act as a powerful lever, hoping by such violent means to make the key unlock it. In such cases the words open 'sesame' would far more likely to produce the desired result. The result of such violence is that the key-bit breaks in the lock and there is no alternative but to drill or cut open the door, and in many cases the safe has to be sent to the makers to be opened and refitted, thus entailing on the owner a very considerable expense."

The Chinese are called the most unprogressive and exclusive of peoples. But if the Chinese had some hints to give to us in the making of locks when inventive progress in that industry began to re-stir in England, they have shown themselves by no means slow to take advantage of hints they have since been able to get from us in that line. This is one instance of industrious ingenuity:—

A gentleman sent a dispatch-box to a Chinese cabinet-maker to be repaired; it had a Chubb's patent lock on it. After the box had been some time back his attention was accidentally drawn to the lock; he examined it and found a facsimile of the old lock had been put on, the man having retained the old Lock as a pattern.

The duels that have been carried on by rival locksmiths is one of the most curious things in the annals of industrial progress. Our enemy is our helper," as Burke said; but it would almost have been beyond nature to expect that in all cases the locksmith should have been meekly ready to accept the dictum as final. Some men seem to have devoted themselves preservingly to the business of attempting to pick famous locks that they might entitle themselves to the reward offered by advertisement. Many professed to have picked the Chubb lock; but failed in one form or other when subjected to the necessary tests. Even Mr. Hobbs, who had trained himself more thoroughly than perhaps any man ever did before, failed under the agreed conditions fully to satisfy all those who were qualified to judge that the thing had been fairly accomplished. At all events, he soon had the tables turned upon him by Mr. John Goater, who, after having stated at a certain meeting that he had picked several of Mr. Hobbs' locks, and proceeded to show how it was done, was met by Mr. Hobbs, who got up and said that he had become quite aware of it, and was just then improving his lock—poor comfort for those who had meanwhile fitted up all their places with the discarded ones, warranted as "unpickable." Mr. Hobbs made a great sensation both by pen and tools when he came to this country some thirty years ago. There can be no doubt of his great ingenuity. He was a first rate mechanic; but a disinterested person said of him that he was certainly not an economist: "his extravagant notions of costly and elaborate machinery would have come near to ruining the bank of England." The Parantopic or changeable Bank lock is the highest reach of his genius; it is a remarkable production, exhibiting a mind of great fertility and resource. It may thus be fairly described:—

The bits or steps on the web of the key, that net in the levers inside the lock, are separate, instead of being, as in other keys, cut in the solid metal. These moveable bits are fastened by a small screw on the end of the shank of the key, when it has the appearance of any other levellock key. There are, besides, spare bits to change underneath. The lock has sets of levers, and is so constructed that, whatever the arrangement the bits on the key may have when acting on the lock, the latter immediately adapts itself to the same arrangement and will lock and unlock with perfect facility; but it cannot be unlocked by the formation of the "bits"

except that which locked it. If a bit is changed in its place the lock will remain locked, because, by the alteration, the key has also become changed in its action, to which change the levers will not answer. As was almost to be expected from the peculiar intricacy of this lock, and others of Mr. Hobbs' make, the great practical objection to them is their aptness to get out of order, as was found at the District Bank in Liverpool, where, owing to this cause, they were disused in 1862. There can, however, be no reason against saying that both locksmiths and the public were much indebted to Mr. Hobbs for the ingenuity which he showed in lock-picking during his visit to England about the time of the Great Exhibition of 1851. He awakened the manufacturers all round to the defects of locks hitherto considered to be secure; and was the means of calling forth new inventive capacity.

The charges and counter-charges of appropriation of principles it would be wearisome to follow, and by no means edifying. Simson's duplex bank lock was charged with exactly reproducing Duce's quadruple of 1823. Mr. Saxby the working man who gained the prize offered by the Society of Arts in 1855 for the best and most secure lock for ordinary use at a low price, was accused of reproducing an old idea, and had to testify that his literary studies had been less extended than he got credit for, and that his appropriation, if it was an appropriation, was fully involuntary. He was so poor that he had frankly to acknowledge some of the defects in his lock, because he had been unable to purchase the proper tools that he desired in order properly to finish it; and yet great locksmiths grudged him the little credit he got and his poor £10 prize-money, and showed as much ingenuity and spent as much ink as might as materially improved existing locks and written exhaustive descriptions of them.

As a further specimen of the jealousy and the trade eagerness which were developed by the "lock controversy," we must shortly refer to Mr. Hobbs' great failure. Though some of his own locks guaranteed to the public as "unpickable," had, as we have seen, been picked by Mr. Goater, Mr. Hobbs, by certain statements to the effect that the well known lock of Mr. Cotterill, of Birmingham, was merely a modified Bramah lock, and that he could pick it with ease, led Mr. Cotterill to send forward a challenge.

That challenge was accepted, Mr. Hobbs undertaking to pick the lock in twenty-four hours. In this he completely failed, after the most careful and resolute attempts; and he was compelled to acknowledge before the judges, that if "he worked at the lock for a month, he should still be in the same position as he was at the close of twenty-four hours," a very good, but, as far as regards him, unfortunate testimony that all English work was not inferior to American.

The chief peculiarity of the Cotterill lock was that it had twelve slides, which had to be operated on, so as to force themselves, by means of a sloping or bevelled edge, into a groove in an outer ring, which was placed round the central lock; and till all the slides simultaneously did this, the lock could not be opened. Every slide on being picked by any instrument, from the centre to the periphery, impinged on the external steel ring; and only by increasing pressure to the due degree being applied to all the twelve slides at once could bolt be moved.

It will not be out of place if we should say a word or two about Mr. Parnell's famous lock, which appears to be so constructed that pressure obtained against the bolt, without the proper key, entirely stops the action of the levers, an end accomplished by giving the lock or bolt two actions—namely, a forward and a backward one, in the simple act of locking and unlocking. This is done by a single revolution of the key as in locking any ordinary lock. The levers are adjusted twice by a simple mechanism ere the lock can be unlocked; and this must be done, in the first place, before any pressure is applied. The stump of the bolt is original and peculiar. It is propelled into a special or third chamber, formed in the levers. The stumps enter this chamber in locking; and it is effected by the back action already mentioned. To make this important feature clear, we must add, that after the bolt is shot

out, and held there by the levers, the bolt in the further revolution of the key recedes, and locks down the levers, thus entirely frustrating the *modus operandi* of the scientific and experienced lock-picker, as also does the safeguard of a shield, supported upon a high ward, upon which it revolves, also revolving in the cap-plate of the lock, which entirely closes the key-hole during the operation of locking or unlocking. This shield, being connected by a stump or notch with the lever, must be turned, thus shutting out the lock, even from attempting to raise the locked levers.

The curiosities of locks would in itself be a fruitful subject. We have in our possession a very fine padlock sent to us by a lady from India. On the key being turned to unlock it, several distinct notes somewhat like the sound of a small bell, are given sufficiently loud to act as a detector if any one were in the same house. The padlock is of brass, and we were told that it was made in Jessore, Rajpootana. A very different lock from this, but equally curious is the old-fashioned "Amen" lock, which means a padlock formed of rings marked with letters which when placed to form a certain word will open, but not otherwise. This is an older invention than might be supposed, for we find it thus spoken of by Beaumont and Fletcher:—

"A cap-case for your linen and your plate,
With a strange lock that opens with A.M.E.N."

Dr. Pilot, in his "History of Staffordshire," writes of the locksmiths there in the seventeenth century:—"So curious are they in lock work that they can contrive a lock, so that the master or mistress of a family sending a servant into their closets, either with the master key, or (if a permit an inferior key) with their own, can certainly tell by the lock how many times that servant has been in, at any distance of time; or how many times the lock has been shot for a whole year together, some of them being made to show it 300, 500 or 1000 times; one of the chief workman of the town told me (might he have workman's wages) he could make one that would do it 10,000 times. Further yet, I was told of a very fine lock made in Wolverhampton sold for £20 that had a set of chimes in it that that would go at any hour the owner should think fit. And these locks they make either with brass or iron boxes so curiously polished, and the key so finely wrought, that 'tis not reasonable to think that they were ever exceeded, unless by Tubal Cain, the inspired artificer in brass and iron."

It is remarkable that, while even thus early in England so much ingenuity should have been shown in producing toy-locks of this kind as mere curiosities, the locks generally in use should have for so long a time, remained so rude and so far beneath the requirements of security. Equally strange is it that, though lock followed each other generation after generation in the same poverty of invention, they should often have been so richly ornamented externally as to have furnished a fine field for the designers of modern ornaments in locks—not a few of the finest designs of polished and jewelled locks and keys sent to the Paris Exhibition of 1879, particularly of Messrs. Chubb and Son, having been suggested by these ancient designs. Some of the cut polished steel keys were truly beautiful, not surpassed in tastefulness even by those in gemmed gold work, fit for the jewel-case of a king.

DESCRIPTIONS OF RECENT INVENTIONS.

(Condensed from Official Specifications.)

IMPROVED VENTILATORS AND CHIMNEY-COWLS.

In constructing the improved ventilators the parts are so arranged as to secure a downward current of fresh air into an ascending current of vibrated or heated air from a ship or building. The casing consists of two concentric tubes, the inner one being about half the diameter of the outer one. In the axis of the inner tube a fixed pivot is mounted, on which turns two sets of vanes inclined in opposite directions, one set of vanes being somewhat smaller than the inner tube and working therein, and the other set working in the annular space between the two tubes. The outer vanes are

so inclined that a current of air entering the ventilator descend and gives a rotary motion to the two sets of vanes, after which it becomes diffused in the ship or building by deflecting-plates. The rotation of the inner set of vanes produces an upward current of air in the ventilator, from which it issues by a side-opening near the top, but at a point opposite to that at which the incoming current enters. Mr. T. E. Bladdon, Lamp Manufacturer, of Birmingham, is the inventor.

PORTABLE APPARATUS FOR EXTINGUISHING FIRES.

In this apparatus compressed air is utilised, its pressure being exerted upon water contained in a reservoir of such dimensions that when charged the same may be conveniently lifted and carried. To the reservoir is attached the compressed-air vessel, the latter being provided with a valve which admits and retains the air until the apparatus is required for use. Provision is also made whereby the air-receiver can be readily detached from the apparatus and connected to an air pump for the purpose of being charged with compressed air; or the pump may be fixed to, and form a portion of, the apparatus. Attention is drawn to the fact that the air pressure is strictly confined to the air-receiver when the apparatus is not required to be put in use, and that it is also applicable for distributing disinfectants and for similar purposes. The inventor is M. Vinning, Walbrook, E.C.

SECURING THE BLADES OF KNIVES, &c. IN THEIR HANDLES.

The knife blade is formed with a split "tang," each end of which is formed with a flat hook or catch; the hole in the handle for the reception of the "tang" is formed suitably to receive the upper and the solid portion of the latter, and is of a length equal to the distance between the shoulder of the blade and the flats of the tang-catches, to receive which the hole is here slightly enlarged. In order to secure the blade in its handle, the split ends of the tang are pressed together, and the tang is pushed down through the hole into the handle until the tang-catches reach the enlarged cavity, when the tendency of the split portions of the tang to spring outwards takes effect, thus locking the blade in position, the hole and the enlarged cavity, at the end having been previously partially filled with cement. The inventor is M. Merichenski, Poplar, E.

IMPROVED IMPLEMENTS FOR PRUNING.

This invention consists in so making pruning and clipping shears that, when being used, the two edges of the cutters move in opposite directions upon their centres, while at the same time they approach and pass each other, the object being to obtain a combined sliding and shearing motion, and also to ensure greater cutting power and a cleaner cut than is obtainable from this class of shears as usually made. The improved instrument, as made for tree-pruning, for instance, is formed either with two long handles, or with the cutters supported by one handle and operated by a lever and connecting-rod. A slot is formed in the side of the lower cutting blade in which works a pin projecting laterally from the tail end of the top cutter, so that on the former being moved up and down the top cutter is actuated simultaneously, the edges of both blades cutting the subject under treatment in opposite directions. Several modifications of the improved shears are described as adapted for other purposes, such as lopping and hedge-clipping, grass-edge cutting, sheep-shearing, &c. The inventor is Mr. T. Ridal, Cross-pool, Yorks.

DUDLEY DISTRICT IRON.—Dudley, Jan. 1.—Pig iron of local manufacture keeps firm in price, and in steady request. Quotations generally are £3 10s. for all-mine pigs, £2 12s. 6d. for part-mine, and £2 2s. 6d. for common iron. The finished iron trade of the district is marked by a very steady tone.

NAIL AND RIVET MAKING BY THE WOMEN OF THE BLACK COUNTRY.



WRITER in one of our leading daily papers gave a few mornings ago the following graphic and interesting account of the way in which our sisters toil for their bread in the Black Country :—Thousands of females, old and young—mothers and daughters, with little children by their side—toil by day and night, in one part of the Black Country. The female nail workers in East Worcestershire and on the borderland of South Staffordshire district work during the day with all the restless ardour of industrious men; and very often they labour on during the long late hours of the night, and almost to the break of day. The locality in which this female labour is carried on is within seven or eight miles of Birmingham. It is comprised within an area of fifteen miles of dull and dismal Black Country scenery. On one side it touches the boundary of Dudley, with its great iron and coal producing industries. The centre of it is that cheerless tract of country known as Rowley Regis, Gornal, Cradley, Black Heath, Lye Waste, Oldswinford, and Netherton. The ordinary visitor to the Black Country has a very vague idea of this spot. It seems, indeed, to be outside the pale of ordinary social life. In the day time the district is depressing enough; there are not many signs of organised local government; and a little rural village is, in a sanitary sense, better cared for and very much healthier. The houses, if they deserve to be dignified with the word, are wretched in construction; in many instances they are more like hovels than human dwelling-places; they seem to be devoid of all those ordinary conveniences which are to be seen in houses occupied by a better class of workpeople; they certainly shelter, and that is all, the toilers who for a few short hours rest within their rickety walls. That many of these residences accommodate the families who have to live in them is only stating the simple truth. In nine cases out of ten there is only one room below and two above; and in ninety-nine cases out of a hundred they are inhabited by large families. This is a gloomy picture by day; but it is far worse by night. Nearly the whole district is literally, as well as socially in the dark. Occasionally lurid bands of light tinge the distant horizon with a purple glow (they come in fitful flashes from some distant ironworks), but there is no other mode of lighting, except, perhaps, in the liquor vaults and in the shops in the few leading thoroughfares, where the competitive exigencies of business demand the luxury of gas. In all other parts of the district, the Old World system of tallow candle and oil lamp artificial light has not been superseded.

About twenty-four thousand people are engaged in this dismal part of Great Britain in making nails and rivets. It would not be so much a matter for surprise, even for the lowness of the wages that they earn, if they were all men and youths who are engaged in the industry—one of the very worst paid in any part of the country. But it so happens—and here arises the social degradation of the traffic—that there are at least sixteen thousand females engaged day after day in the occupation. They are not all mature women either; daughters work by the side of mothers—daughters who, in their tender years, ought to be either at home, if they have any home, or in bed, instead of working their weary arms in shaping, in the still small hours of the morning, molten iron into the form of nails for the benefit of what are called the “foggers.” Here is a picture of what may be seen any night in this district—except, perhaps, Saturday night. In the middle of a shed which adjoins a squalid looking house there is a whole family at work in the production of these nails; father, mother, sons and daughters—daughters, too, very young in years, but with that sad look of premature age which is always to be noticed in the faces of child workers. The gaiety of youth, its freshness and its gentleness, seems to be crushed out of them. In the centre of the shed, with its raftered ceiling—a bleak and wretched building, through the walls of which the wind readily finds its way—there is a “hearth,” fed by “glades” or breezes. Probably there is a girl or woman

blowing at the bellows, whilst the strips of iron from which the nails are made become molten. Or, to take an actual case witnessed by the writer a few nights since, close upon midnight. In one of these forges was a mother and several children. The mother was a woman probably forty years of age; her youngest daughter—a flaxen-haired girl, with a sweet and winsome face—was certainly not more than twelve years of age. By the side of the hearth there was what is technically called the “Oliver”—a barrel like construction, on the top of which is fixed the stamp of the particular pattern and size of the nail required to be made. The workmen and workwomen, by means of a wooden treadle—an industrial treadmill it ought more strictly to be called—shoot out the nails from the slot in which they are fixed. They have previously hammered the top of the incandescent metal, with masculine firmness, so as to form the head of the nail. The women and the girls seem to work with more vigour than the men—very often, indeed they support their husbands and their fathers, who may have fallen into drunken habits; in other cases, this nail making is the means of supplementing the husband's wages.

But what do the nail-makers earn a week, may naturally be asked? The remuneration they receive is incredibly small. It is no unusual thing—on the contrary, it is rather the usual custom—for a family of three or four persons, after working something like fourteen hours a day, to earn £1 in a week. But out of this money there has to be deducted 1s. 3d. for carriage to convey the nails to the “gaffers,” as they are termed in the district; then there is allowance to be made for fuel and the repairing of the machinery, which reduces the £1 to about 16s. 9d. for three people—for three people who have commenced to work every morning at half-past seven or eight, and who have worked on through all the weary day, with no substantial food, until late at night. Who is it that reaps the benefit of all this terribly hard work? Certainly not the labourers; for it is a well-known fact that they rarely taste meat from one week's end to the other. In the expressive, but simple, language of one poor workwoman, this is how they fare: “When the bread comes hot from the bakehouse oven on Saturday we eat it like ravening wolves.” The “foggers,” or “Tommy shop” men, live lives of contentment, profit, and rest, at the expense of the poor nail-workers. The “fogger” is an intermediate agent between the worker of nails and the buyer. Out of the bone and sinew of these poor people he makes a very fine living—and he does not work. He has a huckster's shop attached to his dwelling; he supplies at the beginning of the week, the nail-workers with their sixty-pound bundles of iron in the marketable shape of nails—out of which he makes, at least, twenty per cent profit—if they do not buy his high priced provisions they get no more work from him. These are the men who, by cutting down the workmen's wages to starvation point, are at the root of the evil.

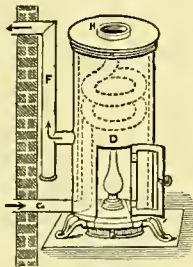
In cases where the labourers can deal directly with the nail masters the evil is not so pronounced; but even then the payment is miserably low. But when these poor people come into contact with the “fogger” they are dealing with a hard taskmaster. He even “tricks” the workpeople when they bring in the nails to be scaled; he does a sort of ingenious “odd trick” with the heavier nails by weighing them amongst the short-weighted nails. Considering that out of a bundle of 60lb. weight of iron there will have to be produced nearly twelve thousand nails, each nail separately forged and hammered, it is cruelly unjust for the “fogger” to resort to such practices. The “fogger” is also in the habit, besides enforcing the “truck” system, of dealing out to some of his customers inferior bundles of iron; and these have very often to be exchanged for better iron, at a loss of sixpence or sevenpence a bundle. It may appear strange, but it is an undisputable fact, that two young women, after working more than sixty hours a week, earn less than four shillings and sixpence a week; and out of this pittance in many cases they have to keep three or four children. If they offend the “fogger,” they sometimes starve; and hence it is that so many scenes of misery—misery so deep and dreadful that the most graphic pen can but faintly convey its depth

of sorrow—are witnessed. Women within a few days of confinement have been known to work in the agony of exhaustion, in order to earn a few pence at the “hearth”—not the “hearth” of home, but the hearth of the “forge” they have been known to return to work in a day or two after childbirth, emaciated in constitution, weak and weary for the want of simple nourishment. Their children, ragged and ill-fed, have had to lead miserable and wretched lives, with no hope before them but a life of wickedness and vice.

HEATING APPARATUS.

AT the present time when there is such great demand for slow combustion stoves, and for heating apparatus which shall warm a room without rendering impure its atmosphere, we have much pleasure in describing to our readers the “Calorigen,” which, with slight variations in its construction is made to consume gas, oil or coal.

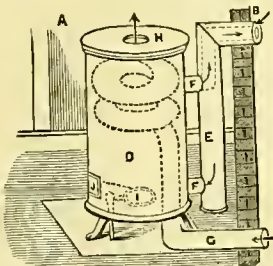
To begin, we will take the oil “Calorigen” made for warming and ventilating bedrooms and small conservatories. This stove is constructed to burn paraffin or petroleum oil, and is made in sheet iron or sheet copper. The product of combustion is carried away, at a low temperature, with but little waste of heat by means of a flue, so arranged as to prevent a back draught blowing out the



FOR OIL.

lamp. The heat generated by combustion warms a thin coil of sheet iron or copper in the interior of the stove, the coil being in communication at one end with the external atmosphere, and at the other with the apartment; thus a stream of fresh air, which is warmed in its passage, is drawn into and equally diffused throughout the apartment. The consumption of oil is about half-a-gallon in 24 hours.

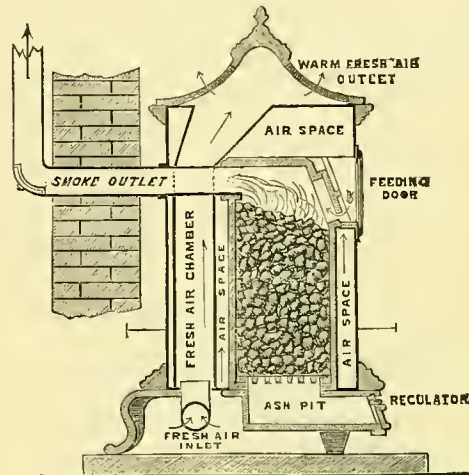
For burning gas the “Calorigen” is made in iron or copper with ornamental castings and looks a very handsome stove. It renders gas a cheap source of fuel; is perfectly safe, and gives no trouble. It may be placed anywhere, without injury or danger. It will be found very valuable in the nursery or sick-room, offices, damp buildings, shops, conservatories, &c. It warms an apartment



FOR GAS.

containing 2,000 cubic feet efficiently and if kept alight night and day, will warm a much larger space. A small stove placed in the hall of a house perfectly warms and ventilates all the staircases and higher passages; and hence effectually secures the owner of the house from the disastrous effects consequent upon a rapid thaw

following a severe frost. The mode in which the supply of fresh air, properly warmed, is obtained, is that which gives superiority to these stoves; for instead of the air being obliged to find its way into the apartment through crevices in and about the windows, over and under the doors, through loose portions of the flooring, &c., it is at once obtained from the external atmosphere, is warmed in its passage through the stove (without coming in contact with the gas, or being super-heated and burnt by contact with masses of heated metal, and passes into the room at a moderate temperature, but in such volumes that draughts are entirely obviated, the currents being from within the room, outwards.



FOR COAL.

Those who prefer to burn coal will find that the “Calorigen” is so constructed as to be most economical in its consumption of that article. This stove introduces a constant stream of fresh air warmed (but not burnt), and will burn twelve hours without attention. There is no escape of fume when feeding. The manufacturers of this stove and the above described, Messrs. Farwig and Co., of 36, Queen-street, Cannon-street, E.C., have received many testimonials concerning its efficiency, and even the *Lancet*, that most fault finding and exacting of medical journals can only give it a paragraph of praise. We are certain that much care and thought have been expended on the construction of this stove and the result is that it is as perfect as any heating apparatus yet invented.



ALLEGED EMBEZZLEMENT BY A SEWING MACHINE AGENT.

William Robert Chisham, 40, agent, of 60, Audley-range, was charged with embezzling, on the 12th September, £3 10s., the property of the Bradbury Sewing Machine Company. Mr. Tripp of Oldham, prosecuted, and Mr. Brothers defended.

Mr. Tripp said that Messrs. Bradbury and Co., established depots in various towns in the country for the sale of their machines. They established a shop at Blackburn, of which the prisoner was put in charge. It was the prisoner's duty every time that he sold a machine to enter it in a stock book. He had to enter the name and

address of the person to whom the machine was sold, and the price that it was sold for, and also to report every week how business was going on. On the 30th of October, in consequence of the suspicions of the Company being aroused, they sent their district manager (Mr. Cunliffe) to examine the prisoner's stock book. When Mr. Cunliffe got to Blackburn he saw the prisoner, and asked to see his stock book. The prisoner at once said, "I may as well tell you that I have taken five machines for my own use." On the 26th of August the prisoner sold a machine for £2 17s. 6d., to Matthew Dunn, who paid the money and received a receipt (produced). That sale ought to have been reported, together with the sale of other machines, in the report for the week. Some machines were specified as sold, but this one numbered 50,845, was omitted.

Thomas Shorrocks Walmsley, secretary for Bradbury and Co., Limited, produced the agreement whereby the prisoner became manager for the Company in Blackburn, upon salary and commission. By the agreement he was required to devote the whole of his time to the interests of the Company within his district. Cross-examined, this witness said the prisoner had deposited £50 in cash with the Company, for which they could, according to rule, deduct any deficiencies when the engagement of the prisoner was terminated by notice, and that they intended to take advantage of.

Mr. Brothers contended that there was here a civil adjustment of the matter.

Mr. Tripp asked if he meant by that that there could be no embezzlement.

The cross-examination being continued, witness said that when the agreement was terminated the prisoner was credited with goods to the value of £41 14s. 6d., so that they owed the prisoner £8 5s. 6d. Since then they had found a machine, which altered the account and they owed him now, roughly, about £15. If the missing machines were sold, as prisoner stated, at wholesale prices, it would make the prisoner's claim against the Company £30 odd. The prisoner had served them with a writ claiming £34 14s. 6d. He, as secretary, received the writ in court that morning. He received notice of the writ last Tuesday, before those proceedings were instituted. He had given the prisoner a month's notice, stating that the Company were "dissatisfied with the amount of business done." It expired on the 11th of November. It was not in consequence of the threatened writ that they prosecuted the prisoner. The machine mentioned as sold for £2 17s. 6d. was sold at the proper wholesale price. When let out on the hire system the price would be £7 10s. The last dividend the Company paid was 10 per cent. yet it was time the shares were below par.

The Bench at this juncture suggested that the case could not proceed further.

Mr. Tripp asked the magistrate to state the case. He contended that by settling the matter by "civil contract," as Mr. Brothers suggested, would be compounding a felony. It could not be reduced to a civil matter.

Mr. Wharton said it was no use going on, as they should decline to commit; but, by the advice of their clerk and Mr. Wardle, the Bench decided to allow Mr. Tripp to continue his case.

The case proceeded, and eventually the Bench committed the prisoner for trial, bail being allowed.

On Thursday, before W. H. Higgins, Esq., Q.C., R. Calvert, Esq., and other magistrates, William Robert Chisham, on bail, was indicted for having embezzled at Blackburn the following sums:—£2 17s. 6d. on the 26th August, £5 10s. on the 2nd September, £3 10s. on the 12th September, and £2 17s. 6d., on the 18th October, the moneys of Messrs. Bradbury and Co. Mr. Blair and Mr. Mellor prosecuted, and Mr. Nash defended.

In opening the case, Mr. Blair said the prisoner was employed as the Blackburn agent for Messrs. Bradbury and Co., sewing machine makers, Oldham, whose business was conducted throughout the country by a very large number of agents. They had warehouses in different towns, and a staff of men who sold machines by retail,

wholesale, and on the hire system. The prisoner was engaged on the 17th January last by prosecutors to push their business. An agreement was entered into, and it bore the signature of the prisoner. It defined his duties, and one of them was that every Saturday he should transmit a written report of all transactions of the week to the Company, as well as to state the exact position of the stock in hand at the time. He also had to remit the exact total amount received from all sources on the Company's behalf. Thus on every occasion that a transaction took place, it was the prisoner's duty to report full particulars to the firm each Saturday, and give an account of all moneys received. The books he had to keep were of the usual character, but wholesale transactions were entered into the stock book only, whilst goods sold retail were entered into each book. One charge prosecutors made against the prisoner was that having sold a machine for £5 10s., the retail price, he entered it in the books as a wholesale transaction, the wholesale price being £2 17s. 6d., and put the difference in his own pocket. Now, there was a deposit of £50 made by the prisoner in order to secure the Company against any defalcations, but the fact of there being such a guarantee did not affect his liability if he misappropriated money belonging to his employers. The first offence committed was on the 26th of August, when the prisoner sold wholesale a machine for which he received £2 17s. 6d., and never entered it into any of its books. The second took place on the 22nd September, when a machine sold by retail was entered as a wholesale transaction. The next was a case on the 18th October, in which the money was given to him, but no entry whatever was made. He thought it fair to say that, with the exception of these, there was not a large deficit behind. He did not say there was nothing more, but there was not a large amount. They proposed to give the prisoner a notice on the 30th of October, there being no suspicion of *malfeasance* and they said something about taking the stock in order to see how matters stood. The prisoner then said, "You will find the stock wrong." There are five machines I have dealt with, and I have not accounted for them. I have been pressed by creditors." Now if he had been pressed, and had paid to his creditors his master's money then, whatever the state of the accounts might be between them that was an act of embezzlement. That prosecution was instituted more particularly to protect themselves from being robbed, and as a warning to their agents not to rob them.

Witnesses were called in support of these statements.

Mr. Nash, in cross-examining a witness named Dobbin, who was prisoner's predecessor, said the public would be somewhat astonished to find what firms paid as the wholesale price, and what they were sold at as retail.

A number of letters were put in, which showed that the prosecution were indebted to prisoner, who had sent a letter threatening them with a prosecution if he was not paid. The day after the threat was made the Company took out a warrant for felony against the prisoner.

The Chairman said the prosecution put themselves out of court. The prosecution come here to day and ask you to convict this man of felony, whereas by their own showing they never said it was a felony at all until he had threatened to sue them for wages. There is no evidence offered against the prisoner in this case, and therefore you (the jury) must say he is not guilty.

The jury then returned a verdict of not guilty, and prisoner was discharged.

MINSHALL v. SMITH.—In this case, heard at the Lord Mayor's Court during the month, it was stated that the defendant, who has offices in Palmerston-buildings, was the owner of a patent of considerable value connected with sewing machines, and negotiations were pending with a company for its adaptation. When these were completed he would become entitled to several thousands of pounds. On these grounds an adjournment was asked for. His Lordship declined to assent, as adjournments are to often requested; but he made a nominal order for payment of the debt and costs in a month.

JONES AND CO. V. TYLER.—The plaintiffs were Messrs. Jones and Co. (Limited), carrying on business as sewing machine manufacturers at 3, Long-lane, Aldersgate-street, and sued the defendant Mr. J. Tyler, tailor, of 11, Denman-street, Haymarket, to recover £8 5s. for the detention of a sewing machine. It appeared from the evidence that the machine was lent to a man named Howard, a member of the Taylors' Society, on the hire system. Howard paid two or three weeks' hire, and then, after forging the receipts on his instalment-book for the full amount of payment, sold it to the plaintiff and disappeared, and the plaintiff afterwards sold it at 10s. profit to another tailor named Reardon. The Commissioner: Well what has become of Reardon? The defendant: He got married, and I do not know where he has gone. The Commissioner: But he must be somewhere. It is not because a man gets married that he disappears for ever. (Laughter.) The defendant said he would do all he could to find where he had gone. He would not have bought the machine had Howard not shown him the receipts in the book. The Commissioner pointed out to Mr. Noton, the plaintiffs' solicitor, that the present form of summons, which was in "trover," was wrong, the defendant having parted with the possession. He would, however, adjourn the case to allow him (Mr. Noton) to add Howard as a defendant, if he could be found.

EXPORTS AND IMPORTS OF SEWING MACHINES

During December, 1882.

IMPORTS INTO LONDON.

M. D., and Co., United States	...	...	£450
Tyer, Hewitt and Co., United States	...	...	£25
do. do. Germany...	...	...	£16
Rosenberg Leone and Co., Germany	...	...	£56
F. Slahschmidt and Co., do	...	...	£91
J. Keniesberg, Germany	...	...	£15
Gordon and Gotch, United States	...	...	£294
Howe and Crampton, do.	...	...	£600
T. Harnett United States	...	...	£4,603
G. Meyer and Co., Germany...	...	...	£20
H. Rolfe, Holland	...	...	£1,230

INTO LIVERPOOL,

Allan Brothers and Co.	...	...	£32
M. A. Brown	...	...	£77
R. Bulman	...	...	£1,375
McArthur and Co.	...	...	£524
Oxton and Co.	...	...	£18
Staveley and Co.	...	...	£20
T. James	...	...	£9
Pickford and Co.	...	...	£490

EXPORTS FROM LONDON.

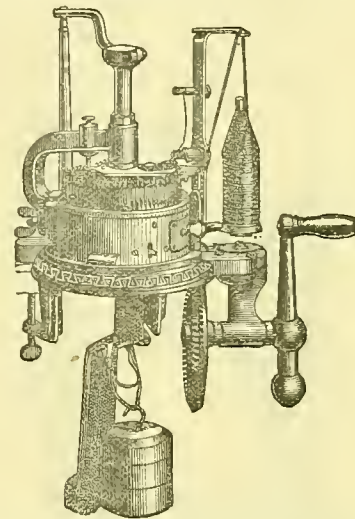
Oporto...	...	...	6	Sewing Machines.
Otago	...	...	24	do.
Natal	...	...	15	do.
Rangoon	...	...	5	do.
Sydney	...	...	8	do.
Monte Video...	...	...	6	do.
New York	...	...	2	do.

FROM LIVERPOOL.

Arica	...	...	8	Cases.
Pera	...	...	51	do.
Samago	...	...	1	do.
Harve	...	...	100	do.
Sierra Leone	...	...	1	Package.
Malta	...	...	10	Cases
New Calaba	...	...	2	do.
Rosario	...	...	4	do.
Valpariso	...	...	89	do.
Genoa	...	...	2	do.
Vera Cruz	...	...	112	do.

KNITTING MACHINERY.

We are pleased to observe that another industry is now becoming introduced to the public, which bids fair to become as beneficial to the careful housewife as the sewing machine. We all remember the introduction of the latter, its early struggles and imperfection and the immense success to which its household work, no less than its manufacturing work has attained. Our American cousins have for sometime been using knitting machines, but hitherto only a partial success has attended their use owing to many imperfections. Now, however, owing to the enterprise of the London and Leicester Hosiery Co., Limited, a circular knitting machine has been perfected, patented, and offered to the public under the name of "Griswold's Stocking Knitter." It is the result of many years evolution, and practically illustrates the theory of "the survival of the fittest," for although it is not probable that Mr. Darwin ever used a knitting machine, it is certain he would have recognised that his theories applied no less to the development of textile machinery than to the human and other races.



The machine in question consists of a frame or bed which can be rapidly attached to a table or sewing machine stand. A cylinder grooved on its outer surface, in which grooves, the knitting needles slide up and down, rests upon this frame. The needles are actuated by cams held in a revolving cam-shell which is driven from below. Over this and suspended by a moveable arm from the frame of the machine is a deal with radiating needles. These needles make the ribbing stitch, and the cam-cap which actuates them is one of the many improvements to which we owe the perfect work and the simplicity in working, which make this machine unique. We give a drawing of the machine, which is, we are informed, the first circular ribber ever made to fashion a stocking leg. This Company, at 41, Charterhouse-square, London, E.C., manufacture their own machinery to secure perfect mechanism, and also manufacture their well known seamless hosiery sold under their trade mark Niantic at their Leicester Factory.

OUR ILLUSTRATED SUPPLEMENT.

—:—

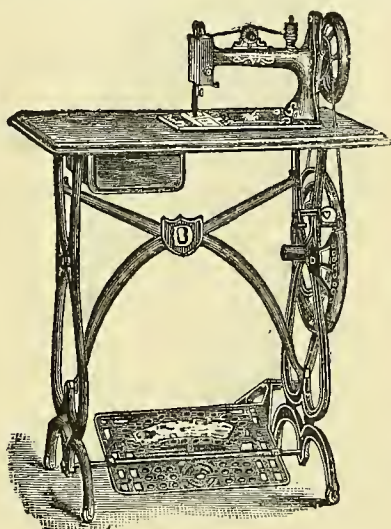
A most handy stove is that which forms our illustrated supplement, which as will be seen, forms either an ornamental warming or useful cooking apparatus. It is well made of cast iron, and is sent out either Berlin blacked or electro bronzed. The fuel it consumes is petroleum, and it gives out, when used as a warming stove, a considerable amount of heat. For cooking a joint its oven acts admirably. The stove is carefully made as are all the manufactures of the Silber Light Company.

THE VERTICAL FEED SEWING MACHINE.

Beyond dispute, the only really Perfect Machine yet produced.

AWARDED THE
ONLY GOLD MEDALS
AT THE
**SYDNEY AND
MELBOURNE
EXHIBITIONS**

In Competition with all the Leading Machines.

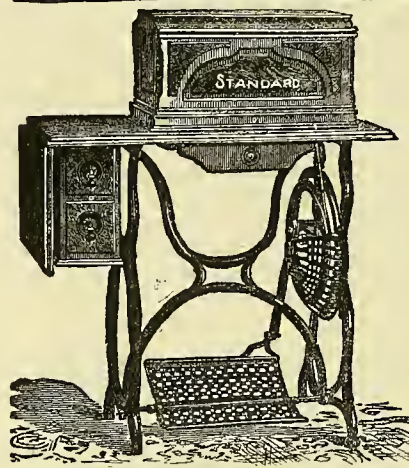


This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the work, and every information, may be obtained at the Offices of the Company.

52, QUEEN VICTORIA ST., E.C.
SOLE ADDRESS IN LONDON.

THE
**LIGHT-RUNNING
STANDARD**
Has No Equal.



**NONE SO SIMPLE,
NONE SO DURABLE,
NONE SO RELIABLE.**

Examine it Before Purchasing any other.

**RENNICK, KEMSLEY & CO.,
4 FINSBURY CIRCUS, LONDON,**

ALSO,
Melbourne and Sydney.

CASTRO & LIND,
HAMBURG,
MANUFACTURERS OF
Saxonia & Taylor Sewing Machines.

LATHES, FRET SAWS.

B **BRITANNIA COMPANY**, Engineers, Tool Makers, offer 130 varieties of Lathes, price from 55/- complete, to £250. Makers of Lathes to the British Government. Only Address—**COLCHESTER, ENGLAND.**

SURPLUS STOCK.

C **OVERS** for Singer Machine, Panelled Polished Walnut, 6/6. 100 best quality Galvanized India Rubber Wringers, 18/9 each. Best Singer Needles, 4/- per gross; sample on receipt of P.O.O., **BRITANNIA COMPANY, COLCHESTER, ENGLAND.**

**JOURNAL OF DOMESTIC APPLIANCES
AND**

Sewing Machine Gazette.



HE utterances of the Law Lords on the 13th ult., in the suit of the Singer Manufacturing Company v. Loog, are very much like the warning given to the spoilt son—"If you will play with my razors Tommy I suppose you

must, but don't blame me if you cut your fingers." Now for the first time it has been decided that Mr. Smith may use the name of Mr. Brown to describe his goods and make them go down with the public, if by such use the public are not deceived. Truly, there is "much virtue in an if," and the decision of the Lords, will without doubt, give rise to a very lively time of it for the lawyers, and a most uncomfortable and harassing time of it for the trade at large—who may call their machines Singers so long as they don't mislead the purchaser; this is very pleasant news for the retailer, who, emboldened by the recent decision, dubs as a Singer some worthless imitation made in the same shape with the same stand and ornamentation—which, as Lord Bramwell said of Loog's machines in the course of his judgment, "look very much as though it was intended they should be taken for the Plaintiffs." It is as clear as noon-day that he lays himself open, not only to actions brought by people who may have been really deceived, but also by every impecunious or unprincipled hirer who wishes to evade the payment of his instalments when they become due; no more dangerous and expensive edged tool has been given to the retailers to play with for many a long day as they will no doubt find out to their cost.

It is very important to note that the decision of their Lordships was based on the fact that the defendant Loog proposed to carry on an exclusively wholesale business—thus the Lord Chancellor says "Loog's price list differed from that of Messrs. Newton Wilson and Co., whose circular—they being both wholesale and retail dealers—was liable to pass into the hands of ignorant and unwary customers," so that in effect it comes to this: If you are doing business solely and exclusively with wise people who know all about sewing machines and their various makers, you may use the term Singer with impunity; but if you deal with unwise people (and Carlyle has laid it down that the population of Great Britain consists of some thirty millions of inhabitants *mostly fools*) then you had better be careful what you are about, or the legal razor may cut your fingers and make them bleed. Is it too much to hope that the Defendant will adopt the sensible advice of Lord Bramwell, and give up using the same shape and stand and ornamentation as used by the Plaintiffs in their machines? If he did, probably nobody would buy them; but we fear that manufacturers who did not hesitate to affix a bogus trade mark or brass label made in imitation of the Singer trade mark, till they were stopped by an injunction, are not very likely to be influenced by any considerations of fair dealing or commercial morality. The views of their Lordships on this matter were very clearly expressed by the Lord Chancellor—who said at the close of his judgment, "I cannot regard the conduct or the position of the Defendant as standing before your Lordships in a very meritorious point of view, and what I would propose to your Lordships, is that the costs given to him should not include either the short hand notes of arguments, which are in the appendix, or any allowance whatever for the drawing of the appendix," in which view all the other learned Lords expressed their full concurrence. We think it will be evident to every intelligent dealer in sewing machines that the liberty given by this decision is one that it will be most unwise and dangerous for them to use.

THE Sewing Machine Trades, is, at the present time very dull so far as the home demand is concerned; export business is better.

THE SINGER MANUFACTURING COMPANY, v. LOOG.

In the House of Lords—Before The Lord Chancellor, Lord Blackburn, Lord Bramwell, and Lord Watson.
Judgment.

The Lord Chancellor after some preparatory remarks said, "The Plaintiffs in this action have obtained an injunction to the full extent necessary to protect their trade mark. But the Vice-Chancellor, by whom the action was tried, went further, and also prohibited the Defendant (in effect) from using the word "Singer" in any way whatever with respect to any machines not manufactured by the Plaintiffs' Company. The Lords Justices, on appeal, though that, when the trade mark was out of the case, nothing else was shown by the evidence to have been done, or intended, or likely to have been done by the Defendant, against which he ought to be enjoined. They therefore discharged that part of the Vice-Chancellor's order which went beyond the protection of the Plaintiffs' trade mark; and the question, upon this appeal is, whether they were right in doing so.

The Plaintiffs take exception to the employment of the word "Singer" in a certain manner in four documents, of which the Defendant makes use for the purposes of the Berlin Company's business.

After describing the documents in question in detail he continued: It is, in my judgement, superfluous to enter into a close comparison between these documents, or any of them, and that the Dublin price list of the Defendants in the case of the Singer Manufacturing Company v. Wilson, in which Lord Cairns in this House, made certain observations, from which I in no way dissent. That was a price list, materially different in its form and phraseology from any of these documents, which in the ordinary course of Messrs. Wilson and Co.'s business (who were retail as well as wholesale dealers), was liable to pass into the hands of ignorant and unwary customers. The present documents (except the "directions") could not do so, without a deviation from the settled course of the Defendants, and from the natural and presumable course of his customer's business.

It was contended that the acts of the Defendant enabled his wholesale customers to show these documents to their own retail customers for the purpose of passing off the goods bought from the Defendant as the Plaintiffs' manufacture. The answer is that, unless the documents were fabricated with a view to such a fraudulent use of them, or unless they were in themselves of such a nature as to suggest, or readily and easily lend themselves to, such a fraud (which in my opinion they were not), the supposed consequence is too remote, speculative and improbable to be imputed to the Defendant, or to be a ground for the interference of a Court of Justice with the course of the Defendant's business. There is no evidence that, in point of fact, any such use was ever made of them. The "directions for use" spoke unmistakeably of "Frister and Rossmann's shuttle sewing machine," and no one, however careless, could read, in that document, the words "on Singer's improved system" without seeing and understanding their context.

The question, therefore, is whether the Defendant, not representing the machines which he sells as of the manufacture of the Plaintiffs, but, on the contrary, representing them as manufactured by the Berlin Company, is at liberty to say that he makes them "on the Singer system?" I agree with the Court of Appeal in thinking that he is at liberty to do so, and that by so doing (if, in substance he does no more) he infringes no right of the Plaintiffs.

In my opinion, the use of that phraseology by the Defendant is not evidence of any fraudulent purpose or intent. It was urged, however, that it ought not to be regarded separately from the use of the brass plate or label, which has been adjudged to be an infringement of the Plaintiff's trade mark; that it is one of a series of acts, designed with a view to, and practically terminating in, the use of that plate or label; and in all such acts, being so connected together, ought to be alike prohibited. In this view I cannot agree; I think that the representations made by the Defendant to his whole-

sale customers, whether orally or by broadsheet, price list or invoice, have no natural or necessary connection, in intention or in fact, with any deception of retail customers, which might possibly arise from the use of the brass plate or label. No one would contend that there was any such connection, if, in those representations to the Defendant's wholesale customers, the word "Singer" had not occurred, and the case is really the same if (as I think) the word "Singer" was so used as to obviate any reasonable possibility of misunderstanding or deception.

But, my Lords, with regard to costs I have something special to say. The appendices before your Lordships are of enormous bulk, and it can hardly be doubted that most, if not the whole, of the matter contained in them which does not consist of shorthand notes was printed and used in the Court below. My Lords, although your Lordships, if you should concur in the views which I have submitted to you, will think it your duty to dismiss this Appeal, yet I am bound to say, looking both to that part of the case as to which the Plaintiffs have obtained and retained an injunction, and to some other circumstances which I think one of my noble and learned friends will take notice of, that I cannot regard the conduct or the position of the Defendant as standing before your Lordships in a very meritorious point of view. Looking, therefore, to the bulk and magnitude of the appendix, and to the introduction into it, in a manner which I think decidedly unnecessary and improper, of a vast mass of shorthand notes, it seems to me that it would be right for your Lordships, subject to the modification which I am about to suggest, to give the Respondent costs in the usual manner but that you should limit those costs so far as the appendix is concerned; and what I would propose to your Lordships is that the costs given to the Respondent should not include either the shorthand notes of arguments which are in the appendix, or any allowance whatever for the drawing of the appendix.

Looking to the character of this litigation and of this appendix, I would ask your Lordships to exclude from the costs which you give, not only the shorthand notes of arguments in the Appendix, but also any allowance whatever for drawing it.

LORD BRAMWELL: My Lords, I have mentioned to my noble and learned friends Lords Blackburn and Watson, that it is convenient to me to express my opinion on this case now, and I find that it is not inconvenient to them that I should do so. At the same time what I have to say is so short that it would have been better if I had been the last to address your Lordships instead of the second.

The case for the Plaintiffs' (not from any fault of their Counsel) was so loose and vague that instead of trying to state and deal with it, it is easier to consider what the Defendant is charged with having done, and see if there is anything in it of which the Plaintiffs have a right to complain. As to the invoice and receipt, they were given to an agent of the Plaintiffs, who knew the truth. I think the Defendant was correct in calling the machines "Singer Machine," but even if not, he only used a wrong word, and misled no one. But then it was said the word "Singer" is a catch word, and is misleading. People who know no better may read "Singer Sewing Machine," and nothing more, and so he misled. I suppose such a thing is not impossible. But, in the first place, there was no evidence of it. In the next place, it is eminently improbable, as the Defendant deals with wholesale houses who know what they are about. And thirdly, the possibility of such a mistake is not a cause of action. The same thing might happen if the Defendant issued circulars that his were not "Singer" sewing machines. For however large he printed the "not" some one might not see it. The result is that, in my judgement, the Defendant has uttered no untruth nor anything calculated or likely to mislead or deceive in these four documents. But I cannot help saying that the Defendant ought to be very much obliged to those who advised him to discontinue the brass ticket on the machines sold by him; and I think that advice might be carried further, and that he would do well to give up shape and stand and ornamentation which to me look very much as though it was intended his machines should be taken for the Plaintiffs'. I concur in advising your Lordships to dismiss the appeal.

LORD BLACKBURN: My Lords, in this case I agree with the noble and learned Lord on the Woolsack that the judgement of the Court of Appeal should be affirmed, and this Appeal be dismissed with costs.

The original foundation of the whole law is this, that when one knowing that goods are made by a particular trader, sells them as and for the goods of that trader, he does that which injures that trader.

It is, to my mind obvious that, although the Defendants might

have committed no actionable wrong whilst using the Plaintiffs' trade mark innocently, yet, if they persevered in the use of it after they had knowledge of the facts, they would do wrong, and there would be evidence to support a claim at law for damages for knowingly selling Defendants' goods as and for the Plaintiffs'.

The Defendant in this suit makes one admission which I will read: "It is the fact that the Defendant sometimes, not always, attached to Singer machines sold by him and manufactured by the said foreign company hereinbefore referred to, and sold by the Defendant as their agent as aforesaid, brass labels and plates. In many cases there is no label or plate at all upon the machine, in the great majority of cases in which there has been any such label or plate such labels have been German inscriptions, and in the case of from about 250 to 300 machines, and no more, before the commencement of this action, the Defendant sold machines to dealers with brass plates or labels upon them which contained the words in the centre 'F. & R., 128, London Wall, London,' which were the prominent and conspicuous words, and round them in smaller letters were the words 'Frister and Rossmann's Singer machine' in letters of an uniform size, connected together by the words 'German' and 'manufacturer' in smaller letters. All the other labels or plates upon any sewing machines sold by the Defendant have either had German words upon them, with no reference to the words 'Singer machine' at all or have been labels similar in form, size and appearance to the first mentioned labels, but with the words 'Frister and Rossmann's shuttle machine' in lieu of the words 'Singer machine.' Although the Defendant is satisfied and believes that no person has been or could really be misled or deceived by the words 'Singer machine' as used on the said labels or plates in the only manner in which he has ever used them before the commencement of this action, yet the question is of no importance to the Defendant, and to avoid all excuse for further litigation the Defendant has since the commencement of this action, absolutely ceased to use, and the Defendant has not since the commencement of this action, sold or disposed of any sewing machine with any such label, plate or mark thereon, or having the word 'Singer' upon it, and in order to avoid useless expense he hereby submits and undertakes not to use, and he offers to submit at once to a judgment and injunction, with such costs as this Court shall direct, against his using any label or brass plate upon or attached to any sewing machine in which the words 'Singer machine,' or 'Singer system,' or the word 'Singer,' either alone or in conjunction with any other word or words, is in any way used, or selling or using any such machine with the word 'Singer' on the above, or otherwise affixed thereon or attached thereto."

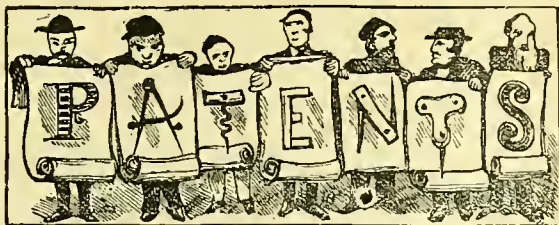
The defendants do admit that they have in their advertisements and circulars said that they make and sell machines made on the Singer system; and they maintain, and, as I think, correctly, that they have a right so to do, if they do no more. I also agree that the special order as to the costs proposed is just in this case.

LORD WATSON: I think it is established by the evidence that the name "Singer" as used by the Appellant Company, and their predecessor in business, Isaac Merritt Singer, has long been and still is generally understood to denote sewing machines of their manufacture. It is, in my opinion, clearly proved that notwithstanding progressive improvements and variations, the sewing machines manufactured by Mr. Singer and the Appellant Company have been distinguishable by their external form and adjustment of parts, from the machines of other manufacturers, and that a customer desiring to purchase a "Singer" sewing machine, invariably understood that he was buying and expected to get not merely a machine made by Mr. Singer or the Company, but a machine of the same shape and character with one or other of the classes which he or they were known to be making at the time.

The legal consequences of these facts is that the Appellant Company have a right—an exclusive right—to use the name "Singer" as denoting sewing machines of their manufacture; and that no one has a right to use the word for the purpose of passing off his goods as theirs, or, even when he is innocent of that purpose, to use it in any way calculated to deceive or aid in deceiving the public. None of the numerous authorities cited at the Bar by the Appellants' counsel carry the exclusive right of a trader to a particular name beyond that limit. There is no authority, and, in my opinion, no principle for giving the trader any higher right. If he cannot allege and prove that the public are deceived, or that there is a reasonable probability of deception he has no right to interfere with the use of the name by others.

I entirely agree with the view expressed by the noble and learned Lord on the Woolsack as to their character and probable effect.

I, therefore agree with your Lordships that the Judgement of the Court of Appeal ought to be affirmed; and I concur in thinking that in the circumstances of this case the costs of the Respondent ought to be dealt with as your Lordship has suggested.



The following List has been compiled expressly for this Journal, by G. F. REDFERN, Patent Agent, 4, South-street, Finsbury, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 5427. W. J. George, of Birmingham, for improvements in tricycles and other velocipedes. Dated November 14, 1882.
- „ 5435. C. R. Stevens, of Lewisham, Kent, Engineer, for improvements in apparatus for heating and ventilating, which improvements are partly applicable for other purposes. Dated November 14, 1882.
- „ 5447. G. Atkins and E. Atkins, both of Birmingham, Manufacturers and Carpenters, for improvements in sliding gasaliers and chandeliers. Dated November 15, 1882.
- „ 5451. W. R. Lake—a communication from E. A. Wilkinson, of New York, United States, for improvements in and relating to sewing machines. Dated November 15, 1882.
- „ 5467. J. Reynolds, of Henwick Lodge, near Worcester, for improvements in apparatus for basting meat, poultry, game, and other food whilst cooking. Dated November 17, 1882.
- „ 5468. W. J. Fraser, of 98, Commercial-road East, London, Engineer, for improvements in and applicable to wheels of carriages, velocipedes, and other vehicles. Dated November 17, 1882.
- „ 5470. S. B. Whitfield, of Birmingham, Manufacturer, and S. J. Whitfield, of the same place, for improvements in metallic bedsteads and bedstead bottoms, and in castors for the same and for other metallic furniture. Dated November 17, 1882.
- „ 5489. T. Hancock, Draughtsman in the employment of Messieurs Bayliss, Jones, and Bayliss, of Wolverhampton, Bolt, Nut, and Fencing Manufacturers, for improvements in screw bolts and nuts, and in washers therefor. Dated November 18, 1882.
- „ 5496. S. Slater, of Oldham, Lancashire, Mechanic, for improvements in stoves. Dated November 18, 1882.
- „ 5512. O. W. Malet—a communication from F. B. Malet, of Christchurch, Canterbury, New Zealand, for improvements in the manufacture of barbed wire. Dated November 20, 1882.
- „ 5516. H. H. Lake—a communication from P. J. Carnien, of Issy, near Paris, for improvements in and relating to handles or holders for use in carving meat and for other purposes. Dated November 20, 1882.
- „ 5517. A. J. Boulton—a communication from C. E. Bailey, and W. R. Talbot, both of Providence, Rhode Island, United States, for improvements in the manufacture of ornamental nails, buttons, and the like. Dated November 20, 1882.
- „ 5521. W. H. Beck, of London, for improvements in sewing machines. Dated November 21, 1882.
- „ 5542. A. Albutt—a communication from F. Müller, of Stuttgart, Germany, for an improved combined urinal and wash stand. Dated November 21, 1882.

- No. 5549. E. Baldwin, of the firm of Baldwin, Son and Co., of Stourport, Worcestershire, for an improved handle for saucepans and other culinary or similar vessels. Dated November 22, 1882.
- „ 5555. G. W. Dyson, of Bolton, Lancashire, for a new or improved construction and manufacture of boiler-flues and boiler shells, and expansion joints for the same part of the said invention being applicable to boilers of ordinary construction. Dated November 22, 1882.
- „ 5562. H. Salisbury, of 125 and 126, Long Acre, London, Lamp Manufacturer, for improvements in lamps and their burners. Dated November 22, 1882.
- „ 5584. W. R. Lake—a communication from C. F. de Redon, of Paris, for an improved electric bell. Dated November 23, 1882.
- „ 5599. H. J. Hissett, of Plymouth, for improvements in tricycles and like velocipedes. Dated November 24, 1882.
- „ 5600. E. Vermeiren, of Brussels, Manufacturer, for an improved water heater. Dated November 24, 1882.
- „ 5626. H. Sutcliffe, of the firm of Messieurs Wright, Sutcliffe and Son, Brass Founders and Finishers and Sanitary Engineers, of Halifax, Yorkshire, for improvements in the manufacture of metal, cisterns and syphons used therewith, and in apparatus employed in such manufacture. Dated November 27, 1882.
- „ 5629. J. Hix, of 47, Park-road, New Wandsworth, London, Engineer, for improvements in bicycles, tricycles, and other similar machines. Dated November 27, 1882.
- „ 5635. H. H. Lake—a communication from G. S. Van Pelt, of New York, United States, for improvements in shears for cutting paper or other material. Dated November 27, 1882.
- „ 5636. T. Carder, of Bideford, Devon, Brick and Pottery Engineer, for preventing the flow of sewer gas into buildings by means of a specially contrived kind of trap. Dated November 27, 1882.
- „ 5637. R. D. Sanders, of Acton, Middlesex, Engineer, for improvements in fret saw machines. Dated November 27, 1882.
- „ 5642. H. J. Allison—a communication from R. W. Turner, of Boston, Massachusetts, United States, for improvements in forks or tongs, chiefly designed for domestic purposes. Dated November 28, 1882.
- „ 5658. W. R. Lake—a communication from J. Mathison, of Lynn, Massachusetts, United States, for an improved method of and machine or apparatus for securing buttons upon leather or other material. Dated November 28, 1882.
- „ 5703. M. Gandy, of 5, Ansdell-street, Liverpool, Manufacturer of Cotton Belting, for improvements in and relating to sewing machines. Dated November 30, 1882.
- „ 5705. G. E. Ménage, of Guildford-street East, London, Lamp Maker, for improvements in moderator lamps. Dated November 30, 1882.
- „ 5737. J. Simpson and S. T. Fawcett, of the Leeds Pail and Perambulator Works, Leeds, for improvements in wheels for perambulators and other vehicles. Dated November 30, 1882.
- „ 5722. M. D. Rucker, junior, and H. S. Jackson, both of Letchford's-buildings, Bethnal-green, London, for improvements in velocipedes. Dated December 1, 1882.

- No. 5725. D. J. Morgan, of Cardiff, Engineer, for improvements in tube stoppers. Dated December 1, 1882.
- „ 5732. P. Gibbons and A. S. F. Robinson, both of Wantage, Berkshire, for a new or improved combined equilibrium and stop valve. Dated December 1, 1882.
- „ 5741. J. Robinson, of Bradford, and G. Robinson, of Sheffield, both in Yorkshire, for improvements in oil cans and other vessels for containing oil, petroleum, and other liquids. Dated December 1, 1882.
- „ 5751. C. D. Abel—a communication from B. Harrass, of Böhlen, near Grossbreitenbach, Thüringia, Germany, for improvements in apparatus for making coffee, tea, and other beverages, partly applicable to cooking purposes generally. Dated December 2, 1882.
- „ 5776. T. Murphie, of Glasgow, for improvements in the driving gear of, and the benches or frames for carrying sewing machines. Dated December 5, 1882.
- „ 5777. A. Lloyd, of 62, Godolphin-road, Shepherd's Bush, London, Manufacturers' Agent, for improvements in and attachments for perambulators. Dated December 5, 1882.
- „ 5778. J. D. Sprague, of Beulah-hill, Upper Norwood, Surrey, for improvements in window sash fastenings. Dated December 5, 1882.
- „ 5781. G. Crofts, Manufacturer, and G. F. Assinder, Manufacturer, both of Birmingham, for improvements in joints or apparatus for suspending or supporting swing looking-glasses, fan-lights, or ventilators, and other articles, and in connecting or attaching such joints or apparatus to their pillars or support. Dated December 5, 1882.
- „ 5795. J. Whitehouse, of the firm of J. Whitehouse and Sons, of Birmingham, Manufacturers, and S. Peacock, of Birmingham, Machinist, for improvements in sash fastenings. Dated December 5, 1882.
- „ 5808. A. H. Robinson, of 4, Clyde-road, Dublin, for improved means and apparatus to be used in connection with gas and other burners for increasing the brilliancy or illuminating power thereof. Dated December 5, 1882.
- „ 5812. H. Rawlings, of 150, Clapham-road, London, for improvements in filters. Dated December 6, 1882.
- „ 5823. T. Carpenter, of the firm of Carpenter, Ford, and Company, of Birmingham, Chandelier Manufacturers, for improvements in holders or galleries for holding and fixing the globes or shades of gas and other lamps. Dated December 6, 1882.
- „ 5826. A. G. V. Harcourt, of Oxford, for improvements in apparatus for heating water and other liquids. Dated December 6, 1882.
- „ 5827. C. A. T. Rollason, of Birmingham, Manufacturer, and C. A. Rollason, of Aston, Warwickshire, Manager, for improvements in the cleaning of iron. Dated December 6, 1882.
- „ 5838. C. L. H. Lammers, of 3, Roseworth-terrace, Gosforth, Northumberland for improvements in panels, plates, and nameplates of all kinds of metal or compounds metals, and the method of producing and filling up letters, figures and designs in such plates, and the manufacture thereof. Dated December 7, 1882.
- „ 5840. T. J. Denne, of Holmesdale, Red-hill, Surrey, for a new or improved arrangement of sewing machine. Dated December 7, 1882.
- Ne. 5844. J. J. Royle, of 27, King-street West, Manchester Mechanical Engineer, for improvements in suspended lights from existing gas fittings for lighting and heating purposes, and in burners for the same, and for other purposes. Dated December 7, 1882.
- „ 5853. W. R. Pidgeon, of Holmwood, Putney-hill, London, for improvements in velocipedes. Dated December 8, 1882.
- „ 5855. T. E. Parker, Architect and Sanitary Engineer, 1, Clifton Villas, Prince of Wales-road, Battersea-park, London, for an improvement in open fire-grates, stoves, furnaces, or other appliances for the more perfect combustion of fuel and preventing smoke. Dated December 8, 1882.
- „ 5858. E. A. Tice, of Clapham, London, Dentist, for improvements in the construction of wheels for velocipedes and other road vehicles. Dated December 8, 1882.
- „ 5861. P. M. Justice—a communication from J. H. Loder, of Brussels, for improvements in gaso-electric lamps. Dated December 8, 1882.
- „ 5876. T. H. Thompson, of Manchester, Engineer, for improvements in the method of and means for ventilating buildings. Dated December 9, 1882.
- „ 5877. W. Hatchmann, of 73 and 74, Wood-street, Cheapside, London, for improvements in perambulators. Dated December 9, 1882.
- „ 5882. J. R. Trigwell, of Chancery-lane, London, for improvements in velocipedes. Dated December 9, 1882.
- „ 5883. A. M. Clark—a communication from C. J. Petit-Badré, Manufacturer, of 2, Boulevard de Strasbourg, Paris, for a new or improved combustion moderator or regulator for stoves and other such like heating apparatus. Dated December 9, 1882.
- „ 5891. A. J. Boulton—a communication from J. W. Rauh, of Solingen-Schlagbaum, Germany, for improvements in pocket knives and the like. Dated December 9, 1882.
- „ 5900. W. R. Lake—a communication from G. L. E. Duhayon, of Paris, for an improved tool or implement designed to serve as a spanner or pipe cutter, or for similar purposes. Dated December 9, 1882.
- „ 5905. E. de Pass—a communication from G. Milczewski, and L. Maschmann, both of Frankfort-on-the-Main, Germany, for an improved construction of tricycles. Dated December 11, 1882.

Letters Patent have been issued for the following :—

- „ 2361. G. D. Macdougald, Analytical Chemist, of Dundee for improvements in the construction of velocipedes. Dated May 19, 1882.
- „ 2406. H. H. Hazard, of 54, Marylebone-lane, Oxford-street, London, Engineer, for an improved tricycle. Dated May 22, 1882.
- „ 2463. W. P. Thompson—a communication from T. N. Cottle, of Boston, Massachusetts, United States, for improvements in bell alarms. Dated May 24, 1882.
- „ 2477. J. Smith, of Liverpool, Baker, for improvements in and applicable to domestic fire places. Dated May 25, 1882.
- „ 2486. J. M. Croisdale, of Manchester, for improved apparatus for supporting the net employed in the game of lawn tennis, also applicable for supporting clothes lines and for other similar purposes. Dated May 25, 1882.
- „ 2530. H. Ransford, of 47, Buckingham-place, Brighton, for improvements in domestic stoves or fire-places. Dated May 27, 1882.

- No. 2553. A. J. Boulton—a communication from E. Salmon, and E. Armant, both of Montreal, Quebec, Canada, for improvements in the manufacture of hinges, and in apparatus therefor. Dated May 30, 1882.
- „ 2593. P. Lawrence, of Farringdon-street, London, Merchant, for improvements in quick adjusting parallel screw or bench vices. Dated June 1, 1882.
- „ 2593. P. Lawrence, of Farringdon-street, London, Merchant, for improvements in wrenches. Dated June 1, 1882.
- „ 2603. J. Hitch, of 10, Winstanley-road, Battersea, London, Engineer, for improvements in valves or cocks with apparatus for the supply of water and the prevention of waste. Dated June 2, 1882.
- „ 2634. C. G. Hill, of Nottingham, for improvements in pleating machines. Dated June 2, 1882.
- „ 2647. J. Robertson, of Govan, Renfrewshire, North Britain, for improvements in or connected with the manufacture of metal tubes. Dated June 6, 1882.
- „ 2736. R. Clayton, of Deepfields, Staffordshire, Ironfounder, for improvements in negro-pots, Dutch stoves, camp-ovens, and other cooking utensils. Dated June 10, 1882.
- „ 2805. A. N. Hopkins, partner in the firm of J. H. Hopkins and Sons, of Granville Works, Birmingham, Tinsplate Workers and Japanners, and T. Baker and T. W. Burt, both in the employ of the said firm, for improvements in ornamenting or producing designs upon tin-plates and other metal sheets. Dated June 14, 1882.
- „ 2810. T. W. Cheesebrough, of 4, South-street, Finsbury, London, for improvements in ratchet braces. Dated June 14, 1882.
- „ 2828. E. H. Baxter, of Birmingham, for certain improvements in attaching door and other knobs or handles to and adjusting them on their spindles. Dated June 15, 1882.
- „ 2834. A. M. Clark—a communication from J. J. B. Frey, of New York, United States, for improvements in and connected with water-closets, also applicable in part to other purposes. Dated June 15, 1882.
- „ 2837. G. Chisholm, senior, and G. Chisholm, junior, both of Stirling, North Britain, for improvements in water taps or valves. Dated June 16, 1882.
- „ 2880. W. Fairweather, Machinist, of Manchester, for improvements in or applicable to sewing machines. Dated June 19, 1882.
- „ 2947. J. S. Edge, junior, Mechanical Engineer, and T. W. Ticehurst, Gunpowder Agent, both of Birmingham, for improvements in bicycles, tricycles, and other velocipedes, and in lamps for and in attaching lamps to bicycles, tricycles and other velocipedes. Dated June 21, 1882.
- „ 3151. F. Wirth—a communication from the firm of Junker and Ruh, Manufacturers of Sewing Machines at Karlsruhe, Germany, for improvements in sewing machines. Dated July 4, 1882.
- „ 3523. D. Thompson, W. H. Thompson and W. J. Boer, all of Queen-square, Leeds, for improvements in regenerative gas burners for heating purposes. Dated July 25, 1882.
- „ 3623. H. W. Hayden, of Waterbury, Connecticut, United States for improvements in lamp burners. Dated July 31, 1882.
- „ 3913. J. R. Chibnall, of 79, King-street, Hammersmith, London, for improvements in baking ovens. Dated August 16, 1882.

- No. 3926. W. R. Lake—a communication from G. Gale, of Waterville, Quebec, Canada, for improvements in spring mattresses or bed bottoms. Dated August 16, 1882.
- „ 3968. W. Harrison, of 69, Hyde-grove, and 128, Portland-street, Manchester, Mechanic, for improvements in hosiery and stocking knitting machines. Dated August 18, 1882.
- „ 4073. P. M. Justice—a communication from V. Vankeerghe, of Brussels, for improvements in electric bell and automatic alarm apparatus and in the applications thereof. Dated August 25, 1882.
- „ 4109. F. H. Wenham, of Warbeck-road, Shepherd's Bush, London, Engineer, for improvements in gas lamps. Dated August 28, 1882.
- „ 4112. W. Morgan-Brown—a communication from W. W. Rosenfield, of New York, United States, Mechanic, for improvements in baths. Dated August 29, 1882.
- „ 4357. J. H. Stiles, of South Norwood, Surrey, for an improved method of constructing oil and other articles of a like nature. Dated September 13, 1882.
- „ 4493. W. R. Lake—a communication from R. G. Usher and C. C. Dickerman, both of Boston, Massachusetts, United States, for improvements in registering padlocks. Dated September 20, 1882.
- „ 4501. A. M. Clark—a communication from J. Groebli, of New York, United States, for improvements in embroidering machines. Dated September 21, 1882.
- No. 4688. A. J. Boulton—a communication from W. Mack, and J. B. Deeds, both of Terre Haute, Indiana, United States, for improvements in nut-locks. Dated October 2, 1882.

PATENTS WHICH HAVE BECOME VOID:—

- „ 4509. A. C. Mac Leod, of Yockleton Hall, Shropshire, Doctor of Medicine, for an improved fastening, especially adapted for gates or doors. Dated November 5, 1879.
- „ 4547. F. Wolff—a communication from K. H. Höybye, of Odense, Denmark, for improvements in lamps for burning mineral and vegetable oils. Dated November 8, 1879.
- „ 4551. A. Kohlhofer, of Munich, Bavaria, but at present of London, for improvements in hot air stoves. Dated November 8, 1879.
- „ 4569. T. H. Price, of Brasshouse-passage, Birmingham, for improvements in and relating to oil cans and feeders. Dated November 10, 1879.
- „ 4577. T. Thorp, of Whitefield, Lancashire, Architect, and R. Tasker, of Prestwich, Lancashire, for improvements in apparatus for regulating the supply of gas to burners. Dated November 11, 1879.
- „ 4582. H. C. Macdonald, of 19, Denmark Villas, Brighton, for an improved safety bread fork. Dated November 11, 1879.
- „ 4602. W. Morgan-Brown—a communication from T. F. Tillinghast, of New Bedford, Massachusetts, United States, for improvements in machines for the manufacture of sewing needles to be used by hand. Dated November 12, 1879.
- „ 4628. W. R. Lake—a communication from T. Carmagnolle, of Paris, for improvements in automatic sewing machines. Dated November 13, 1879.
- „ 4643. D. Hutchinson, of the Oak Foundry Company, of Glasgow, for improvements in combined dry-closets or water-closets and ash bins, and in sink-traps. Dated November 14, 1879.

- No. 4649. D. P. Wright and B. Wright, both of Birmingham, for improvements in hydro-carbon lamps. Dated November 14, 1879.
- „ 4671. S. Dorsett, Machinist, and J. Walker, Blacksmith, both of Wolverhampton, for improvements in tricycles. Dated November 17, 1879.
- „ 4675. W. S. Simpson, of Battersea-park-road, London, for improvements in apparatus for securing windows. Dated November 17, 1879.
- „ 4693. W. R. Lake—a communication from J. M. Dodge, of New York, United States, for improvements in stop-hinges for desks, tables, and similar articles. Dated November 18, 1879.
- „ 4706. S. Buckley, of Guide-bridge, Lancashire, for improvements in the construction of screwing stocks. Dated November 19, 1879.
- „ 4775. J. F. Crease, of Wade-court, Havant, Hampshire, Major in the Royal Marine Artillery, for improvements in filtering apparatus. Dated November 24, 1879.
- „ 4777. M. Hopkins, of Walworth, London, Engineer, and J. Hopkins, of Camberwell, London, Physician, for improvements in the construction of sewing machines. Dated November 24, 1879.
- „ 4792. E. G. Brewer—a communication from H. L. Judd, of Brooklyn, New York, United States, for improvements in curtain rollers and appliances for raising holding, or lowering curtains. Dated November 24, 1879.
- „ 4816. H. J. Fieldus, of Queen's-road, Brighton, Upholsterer and Cabinet Maker, for a new or improved apparatus to be applied to doors, windows, or other places for excluding draughts and rain. Dated November 25, 1879.
- „ 4819. J. Paterson, of Edinburgh, Engineer, for a new or improved washing machine. Dated November 25, 1879.
- „ 4825. W. H. Steil, of Purbrook, Hampshire, Engineer, for improvements in machinery or apparatus for brushing, blacking, and polishing boots and shoes. Dated November 26, 1879.
- „ 4839. J. G. Wilson—a communication from W. Moritz and W. Schlig, of Gorlitz, Germany, for improvements in and machinery for the manufacture of sheet metal elbows. Dated November 26, 1879.
- „ 4844. W. Harvie, of Glasgow, for improvements in lamps and lanterns. Dated November 27, 1879.
- „ 4849. G. Claughton, of Rodley, near Leeds, for improvements in stench traps for sink, washhand, or toilette basins, and for other purposes where stench traps are required. Dated November 27, 1879.
- „ 4853. C. S. P. Wood, of Birmingham, Manufacturer, for improvements in valance suspenders. Dated November 27, 1879.
- „ 4854. J. Caddick, of Birmingham, Tool Maker, for improvements in tools and machinery to be used in the manufacture of breakfast and other cans, coffee and other pots, saucepans, sugar and biscuit boxes and other vessels and articles of like manufacture made of tin plate or sheet iron or copper. Dated November 27, 1879.
- „ 4892. T. Kendrick, of Birmingham, Manufacturer, for improvements in candles. Dated November 29, 1879.
- „ 4938. E. Edmonds—a communication from E. E. G. Bozerian, of 17, Boulevard St. Martin, Paris, for a new or improved portable shower bath. Dated December 2, 1879.
- „ 4941. G. Juengst, of New York, United States, for improvements in sewing machines. Dated December 2, 1879.

- No. 3985. M. Amos, of Westbury-upon-Tyne, Gloucestershire Blacksmith, for improvements in tools for dividing longitudinally the end of a bar of iron or other metal. Dated November 16, 1875.
- „ 4029. T. Wright, Engine Driver, and G. Saul, Builder, both of Sheffield, for an improved apparatus or arrangement for heating public and private buildings, and also for drying purposes. Dated November 20, 1875.
- „ 4124. T. Hoadley, of Landport, Hampshire, for improvements in friction-roller bearings. Dated November 27, 1875.
- „ 4139. A. M. Clark—a communication from A. Marland, of Mount Washington, Pittsburg, Pennsylvania, United States, for improvements in the manufacture of screw nuts, and in machinery for the same. Dated November 29, 1875.
- „ 4154. G. Eyre, of Codnor, Derbyshire, for improvements in apparatus for opening, closing, and securing windows and ventilators which swing on centres or hinges. Dated December 1, 1875.

SPECIFICATIONS PUBLISHED DURING THE MONTH.

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| „ 1945. W. Morgan-Brown, telephone alarms | 8 |
| „ 1952. H. J. Haddan, nut lock | 4 |
| „ 1975. T. E. Bladon, ventilators and chimney cowlis | 6 |
| „ 1985. J. W. Kenyon, low water alarm apparatus | 6 |
| „ 1987. B. Sawdon, burners for petroleum lamps, &c. | 2 |
| „ 1997. R. R. Gubbins and A. Thümling, horological candlestick | 2 |
| „ 1998. J. Robinson, vessels for containing oil, &c... .. | 6 |
| „ 2005. C. J. Gibbs and A. Spooner, metallic handles of smoothing irons, &c. | 2 |
| „ 2006. M. Willshaw, ventilating greenhouses, &c... .. | 2 |

2013.	J. Mitchell, washing machines	...	...	...	2
2015.	G. Hurdle and W. Davie, opening and closing of window sashes, &c.	...	...	...	2
2019.	T. Fletcher, gas burners for heating purposes	...	...	...	6
2022.	J. H. Welch, and B. W. Spittle, attaching door knobs, &c., to spindles...	...	...	...	2
2032.	A. M. Clark, locks	...	...	...	10
2033.	M. Merichensks, securing the blades of knives, &c. in their handles...	...	...	...	2
2036.	T. Body, apparatus for washing clothes	...	...	...	2
2066.	S. B. Wilkins, fire proof doors, shutters, &c.	...	...	...	2
2084.	D. Walker and W. S. Simpson, window sash fasteners	...	...	...	2
2089.	N. J. Crow, attachments for securing tires	...	...	...	2
2103.	G. W. von Nawrocki, box irons heated by gas	...	...	...	6
2104.	E. Hagen, burners for burning hydro-carbon gas with oxygen	...	...	...	2
2105.	C. J. Dawson, iron and wire fencing	...	...	...	2
2106.	H. F. Taylor, and G. Leyshon, coating metal plates with tin, lead, &c.	...	...	...	6
2113.	H. Whitehouse, velocipedes, &c	...	...	...	2
2116.	A. W. Kershaw, ventilators...	...	...	...	6
2121.	T. W. Helliwell, water-closet basins, &c.	...	...	...	6
2133.	F. J. Duggan, construction of stoves and lamps...	...	...	...	10
2139.	B. Bennett, velocipedes	...	...	...	6
2140.	G. F. Redfern, safety pins	...	...	...	6
2148.	W. Dawes, and J. Tankard, tricycles, &c...	...	...	...	6
2155.	C. L. Hett, pipe connections...	...	...	...	2
2158.	H. F. D. Miller, lamps for bicycles, &c.	...	...	...	6
2174.	C. Harvey and W. Paddock, tricycles, &c...	...	...	...	14
2189.	A. Payne, apparatus for sharpening razors and knives	...	...	...	6
2212.	A. Arnold, wire woven fabric...	...	...	...	6
2217.	H. Woodward, knife cleaner...	...	...	...	2
2266.	W. Newell and T. Tollett, combined letter-hox and name plate...	...	...	...	6
2272.	J. M. Hale, stench traps	...	...	...	6
2536.	H. H. Taylor and G. H. Taylor, securing the "scales" to the tangs or blades of cutlery	...	...	...	6
3100.	W. R. Lake, machinery for sewing carpets, &c.	...	...	...	6

GAS AND ELECTRICITY.

A gentleman signing himself "Dogberry" writes thus in the *City Press*:—"I am quite of opinion that gas has not been burnt out," and that it is not likely to be. Electricity has indeed, provided the gas interest with "an impetus and a spur," and though electric lighting may extend, as undoubtedly it will and ought, gas will have its uses, and fresh adaptations for it will continually be found. We have gone on employing it in the same old way until we were surprised into something better by its rival, and now inventors are running a close race with the electric light and gas. I have an idea of my own, which I will present to Mr. Sugg Messrs. Strode, Mr. J. T. Clark, or anybody else that likes to take it up. It seems to me that we have well nigh reached perfection with regard to burners, ornamental globes, shades, and so on. There is quite a dazzling display of these at the Crystal Palace. But what about shop windows? Why cannot tradesmen have devices in gas illustrative in some way of their trades? A baker might show wheatsheaves in gas jets; the grocer, the "caravan of the desert," or other object; the tea merchant, the figure of a clipper ship which brings the "new season's growth" with such wonderful celerity to our shores, or the tea plant, flower and all; a dairyman or a cheesemonger might have a cow or two, or even a farmyard on a small scale; a wine merchant, bunches of grapes; a licensed victualler, clusters of hops. There is, in short, no end to the play of fancy in this direction, and the designs would be something for people to look at, and a most agreeable variation of the present formal system of gas lighting.

OBITUARY.

MR. DANIEL GUILLE.

We recently stated that Mr. Daniel Guile, for many years secretary of the Ironmoulders' Trades Union, was lying ill at Brighton, beyond hope of recovery; we regret now to announce his death. Mr. Guile, who formerly worked in Liverpool, removed to London on his appointment to the secretaryship of the Ironmoulder's Union, and became prominent in various labour movements. He took an active part in promoting the direct representation of labour, and in Southwark made every effort to help his friend George Odger win a seat for that borough. He was also one of the founders of the Trades Union Parliamentary Committee, on which, during the first few years of its existence, he did good service. Mr. Guile, who was a vigorous speaker, not unfrequently appeared on the platform to advocate the Advance Liberal views of which he was an earnest advocate. His administration of his own trade Society was singularly successful, considering the great fluctuations of trade. Working-class leaders have often been taunted with entertaining mutual jealousies and personal animosities, but Daniel Guile's nature was so kindly and generous, that it may be said of him that he has left behind him a host of friends and not a single enemy.

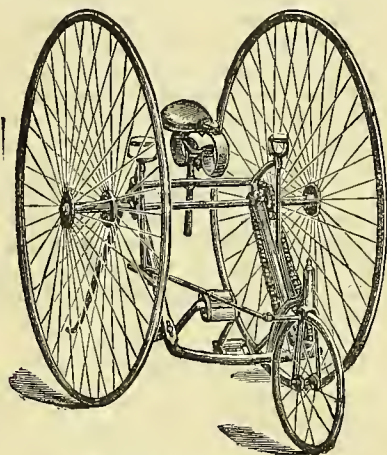
SAMUEL REMINGTON, aged 65.

Samuel Remington, president of the incorporation known as E. Remington and Sons, died at his residence, 18 East 57th Street, of this city, at 6 o'clock P.M., on Friday, December 1st. Mr. Remington was born in Herkimer County, N.Y., and was one of the three sons of Eliphalet Remington. The Remington works, (says a contemporary) at Ilion, N.Y., the best known of their kind in the world, were founded by Eliphalet Remington, sen., who began the manufacture of rifle barrels by hand at a small forge in 1846. From this small beginning grew the large manufactory which has supplied firearms to eighteen different nations. It turns out ploughs at the rate of thirty-thousand a year, and other agricultural implements in proportion; and has a capacity for the manufacture of from two to three hundred sewing machines per day. In 1861 Eliphalet Remington, sen., died, and the present company was incorporated in 1865, with Samuel as president and Philo, his brother, as vice-president. At the close of the war of the rebellion, Samuel went abroad, to effect the introduction of the now celebrated Remington rifles and revolvers to foreign governments. He resided in London, Paris, and Cairo several years, making his home in London. A few years ago he returned to New York, and purchased a handsome residence on 57th street, near Central Park, where he resided till his death. In 1865 the Remingtons began the manufacture of agricultural implements, under a separate organization; and in 1871, buying out the Empire Company, they went into the sewing machine business. A few years later they put their celebrated type writers on the market, and later still they began the manufacture of fire engines. In all these enterprises Samuel took a leading part, and much of the success of the company is due to his good judgment and energy. The sewing machine branch of the business has grown rapidly, especially the export trade; as their extensive foreign connections gave them superior facilities in that direction. Mr. Remington was a typical American man of business. He was just as well as generous; and his death, even at such an advanced age, when his life-work might be considered ended, leaves a vacancy that will be keenly felt both in his business and his family circle.

It was announced at a meeting of the Smoke Abatement Committee, that the Board of Trade had approved of the formation of a smoke abatement institute and of its articles of association. The Duke of Westminster, the Duke of Northumberland, and the Duke of Sutherland, have accepted the office of vice-presidents, and Mr. Earnest Hart is president of the council.

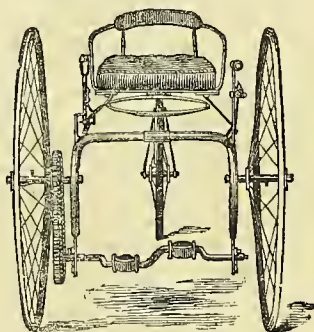
BICYCLES AND TRICYCLES.

This business is rapidly increasing both at home and abroad. Amongst the principal makers in the trade we have much pleasure in noticing in the City of London, the Metropolitan Machinists Company, of No. 75, Bishopsgate-street Without, E.C. They have very extensive steam works adjoining, and employ a large number of hands in manufacturing their specialities, the "Mazeppa" tricycles and bicycles. They are also busily engaged, we are informed on export orders, and this is not to be surprised at considering that their machines are of first class finish and made of the best material.



THE MAZEPPA TRICYCLE.

This machine is, we consider, one of the best and cheapest ever brought into the market. It will turn round in its own length and is made a double driver. Its weight is extremely light, a 40in. machine weighing about 55 to 60 lbs. but still it is very strong, being entirely made of steel. Ball bearings are fitted to all parts, and we learn that this tricycle has been ridden 13 miles within the hour. The price is certainly very moderate for such a well made machine.



THE LITTLE WONDER.

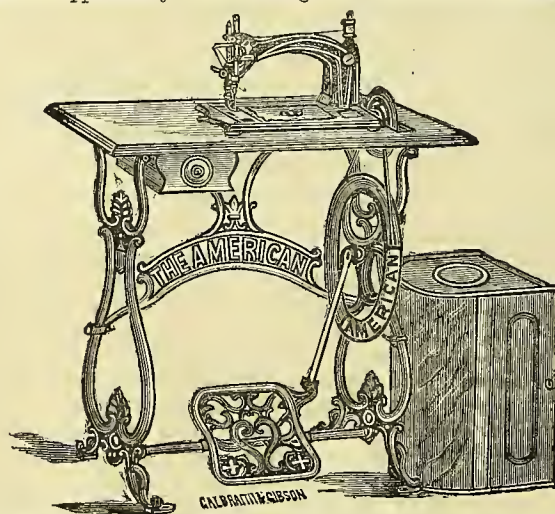
As the name implies this tricycle is indeed a little wonder, and how the Company can turn it out in the style and finish at the price they do we cannot make out. We inspected several of these marvellous little tricycles in the show rooms of the Metropolitan Machinist Company, and also several in the different stages of manufacture. Every one seemed to be turned out with the greatest care, and we carefully inspected the material used in the manufacture of this Company's machines, and all bore a strict investigation. We are not going too far in saying no company could use better materials if they had to charge £20 each for such a tricycle. The workmanship we cannot speak too highly of, and the price of the machine is lower than any other in the market.

Whilst visiting the Metropolitan Machinists Company's Works, amongst other novelties we had brought under our notice was a

patent tricycle of theirs, called the "Gnat," which has won every race it has been entered for, and no wonder considering that it only weighs from 40 to 50 lbs., and the driving wheel which is placed behind the rider is only 26 inches high whilst it is speeded up to 52 inches. This patent tricycle can be ridden by either a lady or gentleman, as the seat can be raised or lowered, brought forward or put back at the will of the rider. In 1880, on an old pattern Gnat, the 10 mile Handicap at Lillie Bridge was won. It has also won several gold and silver medals and also several races in France. This machine is in our opinion a marvel of perfection. The Company have a very large stock on view in their extensive show-rooms, and have erected large steam works in the rear, and to those who have not seen it, it is very interesting to observe the machines in their different processes of manufacture. While the works are in full service and the men are working full time, the Company's manager, Mr. Fuller, informs us that they could turn out 400 Cycles per week, and after viewing the works and seeing the manner in which the manufacturing processes are conducted, noting the skill and care which is applied in every detail, we are also not surprised at the fact that this Company's business is rapidly increasing. At their exhibit at the late Agricultural Show, under the management of their enterprising Mr. Hebb, who made manifest the important improvements in the Company's productions, this stand attracted particular attention by all those interested in bicycles and tricycles, and orders were secured we are informed to a considerable amount. In conclusion we advise the trade and shippers as intending purchasers of machines to call and inspect those of the Metropolitan Machinists Company.

THE AMERICAN BUTTON HOLE MACHINE.

We have been often asked by our subscribers for the address in England of the American Button Hole Machine Company. We take the opportunity of informing them that the machine we



illustrate and indeed all the machines made by that company are sold by Mr. I. L. Berridge, of Leicester, who is their only agent in this country.

MR. S. L. DE FERRANTI, now of Messrs. Ferranti, Thompson, and Ince (Limited), 3, Fenchurch-avenue, states that whilst in the employ of Messrs. Siemens Bros. (Limited) he devoted his leisure time to studying electrical science, but that he never abused the confidence placed in him, and regrets that it has been remarked that he did.

A RETORT.—Husband (2 a.m.—after a curtain lecture): all I've got to say is, if you are a person of such refinement and good breeding, you ought to be above talking to a drunken fellow at this time of the night."

TO INVENTORS. GENERAL PATENT OFFICE

ESTABLISHED 1830.

G. F. REDFERN,

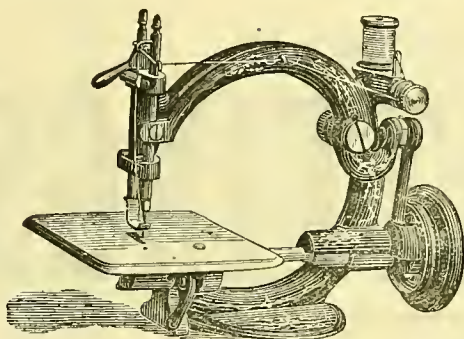
(Successor to L. De Fontainemoreau & Co.),

4, SOUTH STREET, FINSBURY, LONDON;

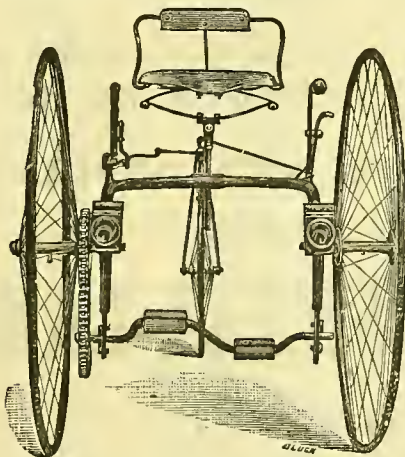
ALSO AT

PARIS AND BRUSSELS.

Provisional Protection, £7; French Patent, £7; Belgian, £8;
 German, £10 10s.; United States, £17 10s. Designs and Trade
 Marks Registered. Circular gratis on application.

CHARLES J. THURLOW,MANUFACTURER OF
SEWING MACHINES,Either for Hand, Treadle, Stand, or Power.
Lathes from 3½ inch upwards.39, CHESTER STREET, HULME,
MANCHESTER

THE "EXPRESS" TRICYCLE FOR 1883.

FOR A LADY OR
GENTLEMAN.ALL SIZES £12 EACH.
LAMPS 10s. EXTRA.

The Cheapest Machine ever offered to the Public.
SPECIAL "EXPRESS" BICYCLE

This Machine is sent out COMPLETE, with Ball Bearings to both wheels
 spanner, oil can, and patent alarm bell. Weight of a 50-inch, 40lbs

		PRICES:	
44-inch	.. ..	£7 0 0	52-inch £8 0 0
46 "	.. ..	7 5 0	54 " 8 5 0
48 "	.. ..	7 10 0	56 " 9 10 0
50 "	.. ..	7 15 0	58 " 9 15 0
Hollow Forks		10s. extra.	

J. DEVEY & SON,
 TOWER WORKS, WOLVERHAMPTON.
 PRICE LIST FREE.

THE BUGLET.

PRIZE MEDAL.



THE BUGLET

PRIZE MEDAL.

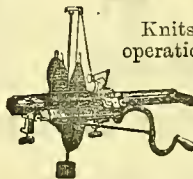
The only Bugle ever made having 4 turns. *The Easiest, Best, Smallest, Cheapest Strougest.* 6 inch by 2, oval, 4 Turns. Over 2000 now sold. Brass, 17/6 Copper, 18/6; Special Club, 20/-, 21/-; Nickel, 23/-, 26/-; Silver Plated, 30/- Engraved 42/-; Prizes, 2 to 3 Gs.; Valves for Buglet, 27/6; 1 Turn Bugles, 3/- 2 Turns 4/6; 3 Turns, 6/6; Oval, 6/6 to 8/6; New Model Round Bell, 9/6; Oval, 2 Turns, 12/6; 3 Turns in C, 14/6. Send for New Lists, Testimonials, 1001 Illustrations. Agents' New Show Card.

The Largest Makers of Horns and Bugles in England.

HUNTING, STAG, DOG, COACH, MAIL, BEAUFORT, DRAG, TANDEM POST SADDLE, WHIP, KOENIG, BICYCLE, TRICYCLE; &c., HORNS. Hunting Horns, ordinary, from 5/-; Superior Solid German and other Special Styles, from 10/-; Silver Mounts from 20/-; Sterling Silver from 3½ Guineas; Mail Horns; ordinary German Silver Mounts and Mouthpiece, and solid wire on Bell, from 10/6; superior, 12-in. Ferrule, &c., from 15/-; Keat's Special, 3½ Bell, Rubs; or Solid German Silver, from 20/-; Keat's Telescope; model, from 25/-; Cases, Baskets, Engravings, Inscriptions, Repairs, and all Fittings. Gratis with Purchase, 4 Instructions to Learn Bugles and Coach Horns, Four Pages, or Lost Free, 2 Stamps.

THE BICYCLIST'S CORNET, 7 by 4½, from 3 Guineas. Also for all other Musical Instruments, to **HENRY KEAT & SONS** (Inventors of the Buglet), Manufacturers, Government Contractors, and Export Factors, 105, MATTHIAS ROAD LONDON, N.

STOCKING KNITTER.



Knits Ribbed or Plain, any size, 2 Stockings at one operation. Knits every variety of Jackets, Petticoats, &c., Cardigan, Fancy or Plain, exactly same as hand.

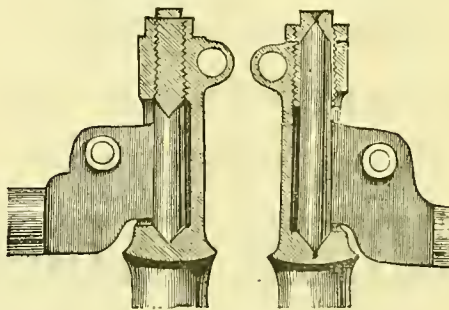
This Knitter obtained the First Prize over others in competition at the Woollen Exhibition, Crystal Palace, London, 1881. 21 New Improvements. List 1d. stamp.

W. HARRISON, Patentee,

128, PORTLAND STREET, MANCHESTER.

ANDREWS' IMPROVED HEAD.

(SEE ILLUSTRATION.)



RECENT CONTESTS WON ON ANDREW'S MACHINES.

Aston, Birmingham.—"The Speedwell Challenge Cup" for 10 miles, by C. A. Palmer.

Liverpool.—North of England Challenge Cup, 5 miles, and 2 miles open.

Isle of Man.—1, 2, and 5 miles Handicap, from scratch.

Lincoln.—Two Miles Handicap, from scratch, by F. Clarke Manchester.

Glasgow, Queen's Park.—The Two Miles from scratch, by Lamb, of Edinburgh.

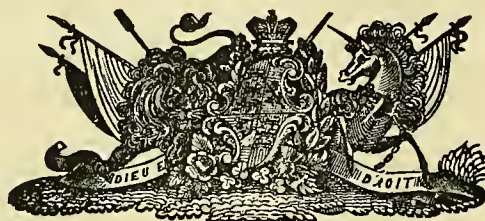
WM. ANDREWS,

Maker of the Celebrated "Sanspareil" Bicycle,
 STEELHOUSE LANE, BIRMINGHAM

Agents.—W. N. Patterson, 36, Deansgate, Manchester; Messrs. Robinson & Price, Pembroke Place, Liverpool; Messrs. Egde & Co., 60, Northumberland Street, Newcastle-on-Tyne, where a Stock of the above Machines may be inspected.

THOMAS SMITH & SONS,

ESTABLISHED 1848.



PATENTEES.

THE ORIGINAL MANUFACTURERS OF

BICYCLE FITTINGS,

EVERY PART SUPPLIED IN VARIOUS STAGES,

**From the Rough Stamping or Forgings to the
Complete Finished Article.**

*None but the very best Brands of Material used for the several purpose
embracing LOW MOOR IRON, BEST BEST GUN, &c., &c.*

VERY SPECIAL IN ALL SUNDRIES AND APPLIANCES,

INCLUDING ALL NEWEST DESIGNS AND PRINCIPLES IN

**SADDLES, VALISES, SPANNERS, LAMPS,
BELLS, &c., &c.**

**61, HOLBORN VIADUCT,
LONDON, E.C.**

, Works:—Saltley Mill, Birmingham.
DEALERS ARE INVITED TO APPLY FOR WHOLESALE TERMS

GRITZNER & CO.,

Patentees,
DURLACH, GERMANY.



LOOSE BALANCE WHEEL.

NICKEL PLATED.

CASTERS IN STAND.

CONICAL BEARINGS.

Woodwork of Best Material,
and very Ornamental.

AUTOMATIC BOBBIN WINDER.

Extra Large Bandwheel.

The Best Thread Cutter,

Patent Belt-replacing Device.

FULL SET OF ATTACHMENTS.

Nine Presser Feet.

Pendulum Treadle.

Highly tasteful Ornamentation in
Colours and Mother o' Pearl.

*Fine Workmanship and Extra
Finish.*

The best situation for Export
(on-the-Rhine).

Manufactory of Sewing Machines & Cabinet Furniture

Latest Improvements in Sewing Machines & Cabinet Work.

SPECIAL ATTENTION given to Packing and Orders for Export.

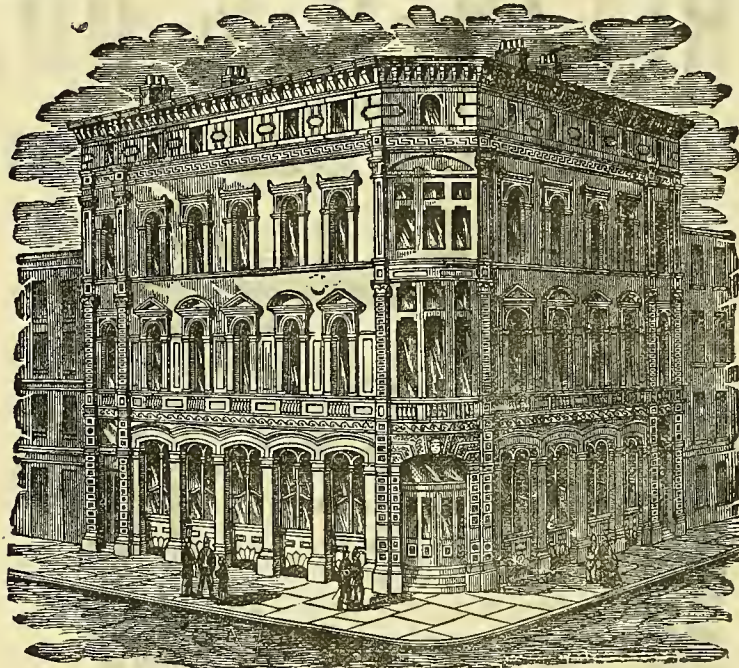
The handsomest and most complete! The latest! The best satisfaction!

THE CHEAPEST!

ESTABLISHED 1836.

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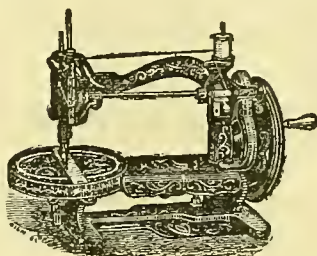


£2 2s. Complete.

THIS Machine has obtained the highest reputation and an enormous sale, both under its true name ("Raymond's"), and also as the "Weir 55s. Machine," &c. — (See caution below). It is durable, rapid, exceedingly simple, neat, not liable to get out of order, and warranted to sew from the finest muslin to the heaviest material.

CAUTION.—JAMES G. WEIR, who, for about eight years obtained these genuine Machines, is no longer supplied with them by the Inventor and Manufacturer, Mr. CHARLES RAYMOND.

BEWARE OF ALL COUNTERFEITS.



£4 4s. Complete.

RAYMOND'S PATENT "Household" Lockstitch Machine has been designed expressly for family use. It is exceedingly simple to learn and to manage, and warranted to sew every kind of family and household work. Is fitted with the latest improvements — loose wheel, and (Registered) Automatic Bobbin Winder.

Testimonials, Prospectuses, Samples of Work, and all particulars free on application.

ALSO

Raymond's No. 1 and 2 TREADLE MACHINES for Families, Dressmakers, and Manufacturers

AGENTS WANTED.

CHIEF DÉPÔT FOR EUROPE AND EXPORT:

11, MOUNT PLEASANT, LIVERPOOL.

P. FRANK, AGENT.

ESTABLISHED 1863.

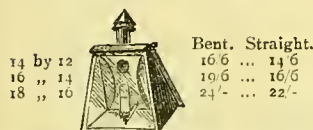
UNGAR'S JEWELLERS' LAMPS.

CURFEW.

DOUBLE.

LOBBY.

PATENTEES OF CORRUSCATE LAMPS.



Bent. Straight.
16/6 ... 14/6
19/6 ... 16/6
24/- ... 22/-

17 by 15
19 " 17



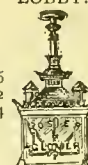
25/-
32/-

18 by 16
22/6

Bent.
18 by 16
27/6



14 by 16
16 " 12
18 " 14



32/-
35/-
48/-

All kinds of Ornamental Lamps.

With Suspenders—
£2 12 6
With Cradle, 2 2 0
" " 4 4 0
" " 6 6 0
" " 8 8 0



Can-
dles.
19 30
19 30
25 50
31 80
37 100

Lamps with Red Bull's eyes, 4/- extra; White, 3/- extra. Top Fittings 2/6; Bottom, 1/9; Argand Burners, 1/3; Chimnies, 15/- per gross, assorted. Bent Rods, up to 6-ft., 2/6.

Finished in the best style. Pillars & Brackets if required.

CORRUSCATE REFLECTOR.

Complete, with Smoke Tops, Chains & Funnels

Burner.

3-light 10/-
4-light 13/-
5-light 16/-
6-light 19/-
8-light 22/-

Reflectors only, 5d. per inch.



GAS SHADES.

Shades to any pattern or size made immediately



Post Office Shades and Frames kept in Stock.

12-in., Fishtail or Argand 2/- per doz.
14-in. " " 2/6 "
16-in. " " 3/6 "

Extra Stout, 6d. per dozen extra.



Lustre, 7-in., 5/6
" 8 1/2 in., 8/-

KOSMO METAL LAMP.

Green or pink shades extra.



No. 1 Quality... 4/-
No. 2 " ... 5/-
Best " ... 6/-

THE GLADSTONE.



Doz.

Gladstone... 30/-
Victoria... 28/-
Kosmo Alabaster... 24/-



PAPER & CARDBOARD SHADES.

Large Assortment of Candle & other Fancy Shades in Stock.



BILLIARD.

Shade ... 10/6 per doz.
Frame ... 10/6 "
Burner, 3-light ... 1/4
Complete, with Burner, Shade and Frame, 3/-

8-in., 8/- per gross
10-in., 11/- "
12-in., 16/6 "
13-in., 18/- "
14-in., 24/- "



MICA CHIMNIES.

6 by 2 12/- per doz.

8 " 2 15/- "

MICA COVERS.



18/- per gross.
5-in. 1/6 doz.
5 1/2-in. 1/9 "
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Mica Coronets, £3 per gross.

CHIMNEY TALKS.



Conical 1/3
Flat 1/-
Best Brass 2/-



RECHAUD LANG.

Better than Gas Stoves.



No. 1, 2, 3 each.
No. 1 21/-
No. 2 24/-
No. 3 27/-

VIENNA COFFEE MACHINES.



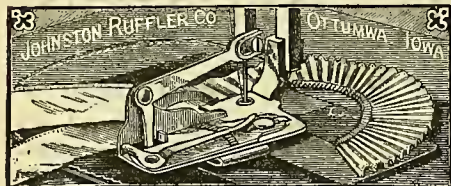
2 Cups ... 8/-
4 Cups ... 12/6
6 Cups ... 12/6
8 Cups ... 14/6
10 Cups ... 16/-
12 Cups ... 18/6

UNGAR'S REVOLVING REFLECTOR.

21-in. 21/-
24-in. 26/-

UNGAR & CO., 52, COMMERCIAL STREET, LONDON, E.

THE JOHNSTON RUFFLER.

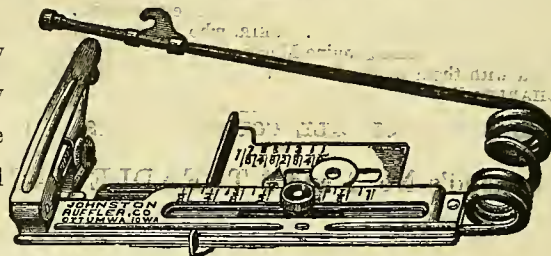


Indorsed and adopted by the Singer Manufacturing Company in the U.S.A., and all first-class sewing machine companies, as the best and most useful sewing machine attachment ever invented. No sewing machine is complete without one. Every Ruffler warranted.

For sale by all sewing machine agents.

THE NEW JOHNSTON TUCK-MARKER.

The Johnston Tuck-Marker has recently been improved by using a flat blued tempered Steel Spring to give the necessary elasticity. With this improvement, (1) no oil is used, (2) more uniform pressure is secured, (3) the wheel is rolled back and forth over the goods, thereby making a smooth crease.



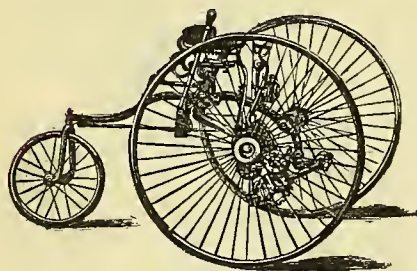
All other Tuck-Markers leave the goods more or less drawn and indented where it is struck by the notch and blade. This Tucker is altogether in advance of anything heretofore placed upon the market. The mechanical workmanship on it is equal to that of a first-class sewing machine.

PRICES, DELIVERED IN LONDON:—

Rufflers, per gross ... £10 0 0 | Tuckers, per gross ... £4 5 0

Send orders to JOHNSTON RUFFLER COMPANY, Ottumwa, Iowa, U.S.A.

THE "RAPID" TRICYCLE



Is the best hill climber ever known.

Its speed is greater than ever before attained.

It is propelled with greater ease than any other Tricycle.

Its brake power is ample, and easily applied.

When descending hills the rider is at perfect rest, and has the most absolute control of the machine.

It is free from complications, and not so liable to get out of order as other Tricycles.

It is made of the best materials and workmanship.

It is very light, but strong and durable.

Its Seat and Handles are adjustable to riders of any size.

It will go through a passage, twenty inches wide.

It is very moderate in price.

All who have tried it agree in saying it is simply perfect, and

HAS NO EQUAL.

Illustrated and descriptive Price Lists (also of their celebrated "Rapid" and "Dispatch" Bicycles on application to the Patentees and Manufacturers,

THE ST. GEORGE'S FOUNDRY COMPANY, POPE STREET, BIRMINGHAM.

THE LARGEST

THE LARGEST SEWING

THE LARGEST SEWING MACHINE

SEWING

MACHINE

FITTINGS

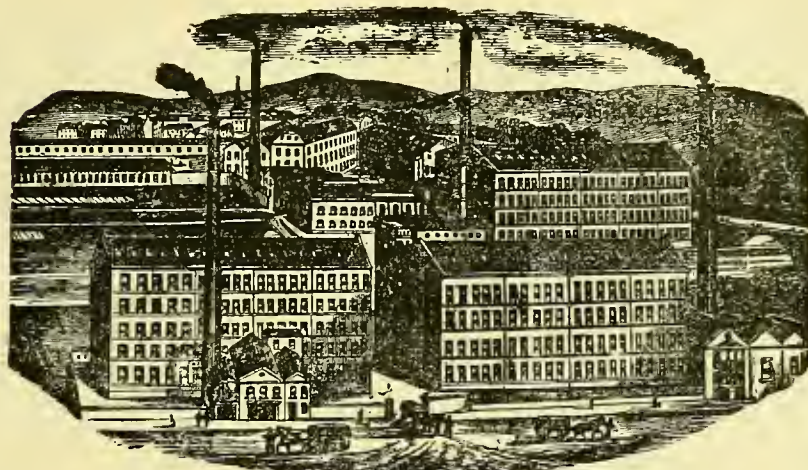
Machine "Belt"
Manufacturers.

Oil

Manufacturers.

Warehouse.

Bishop's Cluster Company, Limited, 25, Hamsell St., London, E.C.



JOHNSTONE FLAX MILLS.

INDEPENDENT TESTIMONY.

FINLAYSON'S THREAD,

AT THE

GREAT AMERICAN LEATHER FAIR

The Threads manufactured by FINLAYSON, BOUSFIELD & CO. are in practical and exclusive use during the Exhibition in Mr. Tilton's Boot Factory, and by the Goodyear, the Blake, the Keats, the National Wax Thread Machines, and by the New International Dry Thread Machine. This, as a practical endorsement of this Thread, is certainly very suggestive, and it is doubtful whether stronger testimony, from those best qualified to judge, could possibly be given, 'as to the quality of the article under notice.'—*Boston Advertiser*, September 10, 1881.

FINLAYSON, BOUSFIELD & CO.,
FLAX MILLS,
JOHNSTONE, near GLASGOW,
AND
GRAFTON FLAX MILLS U.S.



GRAND PRIZE

AND

GRAND CROSS

OF THE

Legion of Honour

PARIS

INTERNATIONAL

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FEBRUARY 1, 1883.

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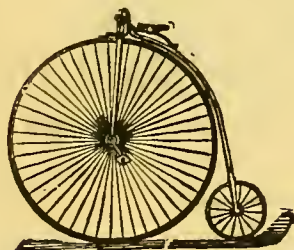


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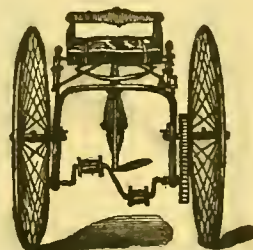
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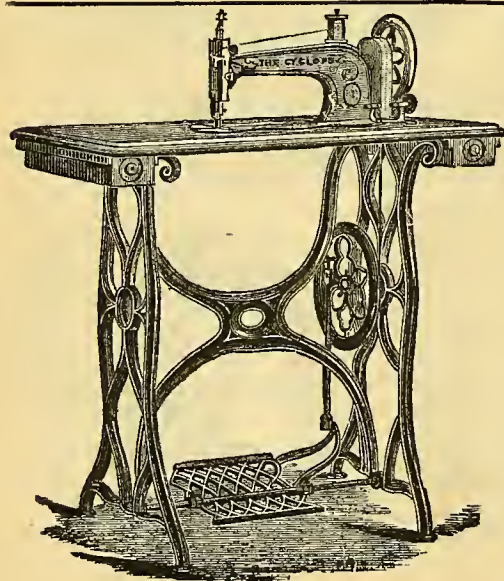
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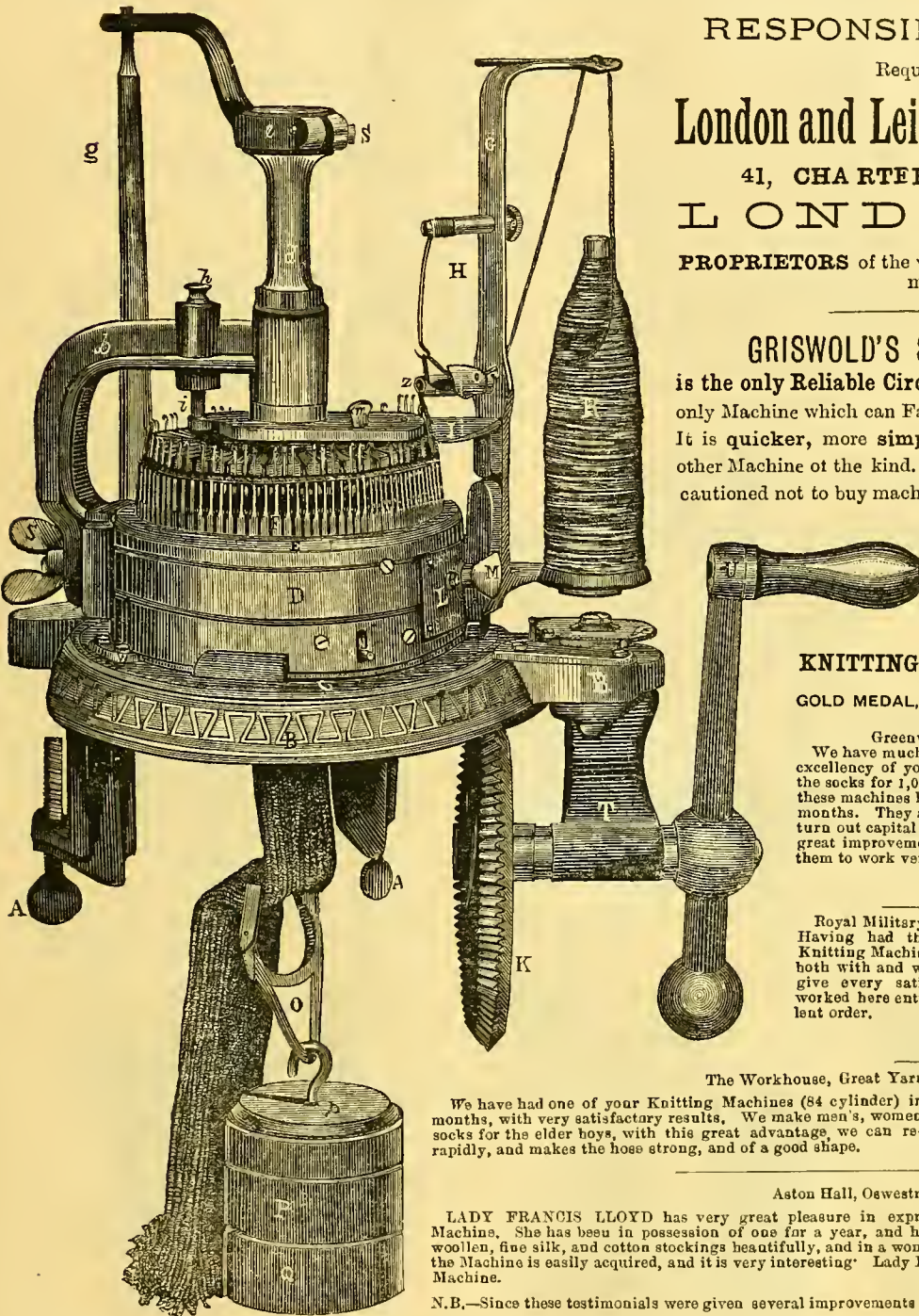
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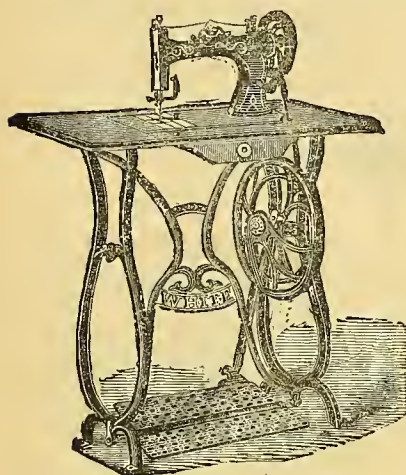
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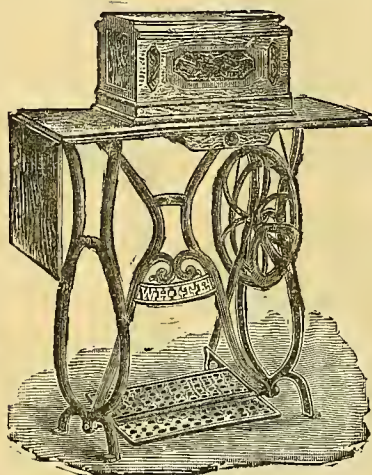
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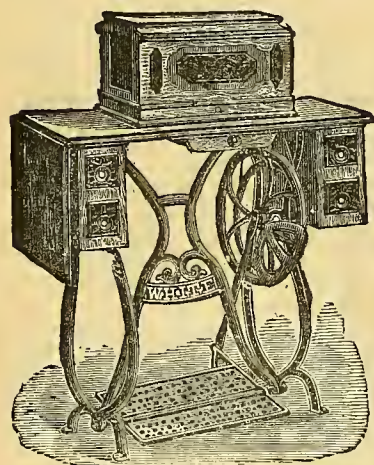
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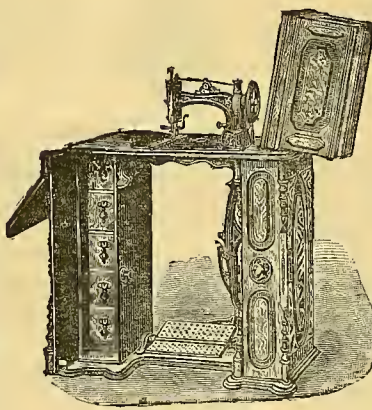
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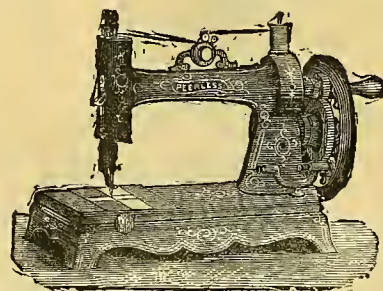
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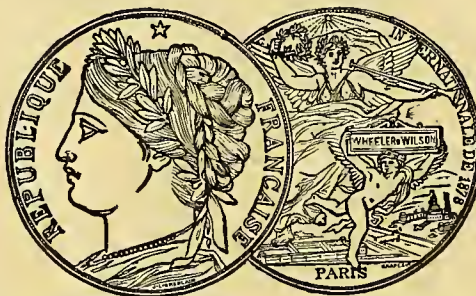
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Scottholme, Basford-road
Sheffield, 37, Fargate
Shipley, 19, Kirkgate
Shrewsbury, 4, Market-street
Sittingborne, 64, High-street
Southampton, 105, High-street
Southend, Market-place
Southport, 7, Union-street
St. Helen's, 31, Market-place
Stafford, 25, Gaol-road
Stamford, Ironmonger-street
South Stockton, 13, Mandale-road
Stockport, 11, Bridge-street
Stourbridge, 6, Church-street
Stratford-on-Avon, 19, Wood-st.
Stroud, 7, George-street
Swadincote, Station-street
Swindon, 52, Regent-street
Tamworth, 54, Church-street
Taunton, Bridge-street
Torquay, 58, Fleet-street
Truro, 13, Victoria-place
Tunbridge Wells, Vale-road
Tunstall, 119, High-street
Wakefield, 9, Kirkgate
Walsall, 2, Bridge-street
Warrington, 44, Horsemarket-st.
Watford, Queen's-street
Wednesbury, 67, Union-street
Wellington, Church-street
West Bromwich, 5, New-street
Whitchaven, 70, King-street
Wigan, 21, King-street
Winchester, 27, St. Thomas-street
Windsor, 64A, Peascoe-street
Windsor, Over-lane
Wirksworth, North-end
Wisbeach, 51, Market-place
Wolverhampton, Queen-street
Worcester, 2, St. Nicholas-street
Wrexham, 7, Charles-street
Yarmouth, Broad-Row
York, 24, Coney-street

WALES.

Abergavenny, 19, Market-street
Aberystwith, Market-hall
Builth, High-street
Cardiff, 5, Queen-street
Carmarthen, 7, Llamas-street
Carmarvon, 5, Bridge-street
Dolgelly, Market-hall
Merthyr, 1, Victoria-street
Newtown, Market-hall
Pontypool, Market-hall
Pontypridd, Market-hall
Swansea, 103, Oxford-street

SCOTLAND.

Aberdeen, 225, Union-street
Arbroath, 159, High-street
Ayr, 60, High-street
Banff, 17, Strait-path
Cupar-Fife, 61, Crossgate
Dumbarton, 67, High-street
Dumfries, 127, High-street
Dundee, 128, Nethergate
Dunfermline, 87, High-street
Edinburgh, 74, Princes-street
Elgin, 215, High-street
Forfar, 25, Castle-street
Galashiels, 62, High-street
Glasgow, 39, Union-street
Greenock, 8, West Blackhall-st.
Hamilton, 32, Cadzow-street
Hawick, 3, Tower-knowe
Inverness, 14, Union-street
Kilmarnock, 83, King-street
Kirkcaldy, 69, High-street
Kirkwall (Grnky), Broad-street
Montrose, 96, Murray-street
Paisley, 101, High-street-cross
Partick, 97, Dumbarton-road
Perth, 64, St. John-street
Peterhead, Rose-street
Stirling, 61, Murray-place
Tain, Lamington-street
Thurso, Princes-street

IRELAND.

Armagh, 2, Gyle-street
Athlone, Church-street
Ballina, Bridge-street
Ballymena, 67 and 68, Church-st.
Belfast, 3 and 4, Donegal-sq., N.
Carlow, Tullow-street
Coleraine, New-row
Cork, 79, Grand-parade
Drogheda, 97, St. George's-street
Dublin, 69, Grafton-street
Ennis, Jail-street
Enniskillen, 15, High-street
Fermoy, 1, King-street
Galway, Donnick-street
Kilrush, Moore-street
Kingstown, 65A Lower George-st.
Limerick, 31, Patrick-street
Londonderry, 1, Carlisle-road
Mullingar, Greville-street
Navan, Tringate-street
Newry, 18, Sugar-island
Parsonstown, 2, Saffins
Queenstown, Harbour-row
Sligo, 45, Knox-street
Tralee, 40, Bridge-street
Waterford, 124, Quay
Wexford, Belskar-street

THE "UNIVERSAL" KNITTING MACHINE.

BY HER MAJESTY'S

ROYAL LETTERS PATENT.

ANY PERSON

With an ordinary amount of knowledge can learn to work this Machine in **THREE LESSONS**, and can make **A GOOD INCOME** by Knitting Hosiery upon it, as from $1\frac{1}{2}$ to $2\frac{1}{2}$ dozen pairs per day can be made.

THE MACHINE

Will last a life time, and cannot get out of order with fair usage, as it always makes a perfect stitch and drop stitches are next to impossible.

This cannot be said of any other Knitting Machine yet invented.

OPINION OF THE PRESS.

"A machine which requires only to be better known, to become much appreciated, is the above. It is a marvellous piece of mechanical skill, and has taken many years of patient study to bring it to its present state of perfection." — *Sewing Machine Gazette*.



THE "UNIVERSAL"

Far surpasses, in every way, all other known Machines, and cannot fail, by its extraordinary merits, to recommend itself to every household and to hosiery manufacturers. It is so simple to learn and work that a child can become proficient in a few lessons and its wonderful speed is such that a full-sized sock can be made in ten minutes, plain or Ribbed. The public are invited to call and see this statement verified.

Price of Machine, complete with appliances, £9 9s. Od.

Any person can make this Machine pay for itself in a few weeks, and full particulars how to proceed will be given on personal application to the

UNIVERSAL KNITTING MACHINE COMPANY, LEICESTER,

OR OF THEIR AGENT

CHARLES GIMSON, Dashwood House, 9, New Broad Street, LONDON, E.C.

Mr. GIMSON is manufacturing by this machine with considerable success, and will forward terms, Samples, &c. on application to the Trade (Sewing Machine Dealers should keep stock) and thus enable them to show actual work done by the machine.

RAYMOND'S CANADIAN SEWING MACHINES.

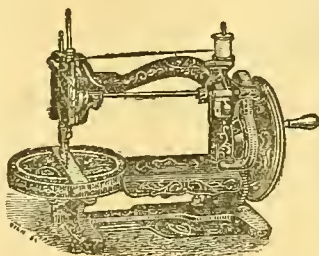


£2 2s. Complete.

THIS Machine has obtained the highest reputation and an enormous sale, both under its true name ("Raymond's"), and also as the "Weir 55s. Machine," &c. — (See caution below). It is durable, rapid, exceedingly simple, neat, not liable to get out of order, and warranted to sew from the finest muslin to the heaviest material.

CAUTION.—JAMES G. WEIR, who, for about eight years obtained these genuine Machines, is no longer supplied with them by the Inventor and Manufacturer, Mr. CHARLES RAYMOND.

BEWARE OF ALL COUNTERFEITS.



£4 4s. Complete.

RAYMOND'S PATENT "Household" Lockstitch Machine has been designed expressly for family use. It is exceedingly simple to learn and to manage, and warranted to sew every kind of family and household work. Is fitted with the latest improvements — loose wheel, and (Registered) Automatic Bobbin Winder.

Testimonials, Prospectuses, Samples of Work, and all particulars free on application.

ALSO

Raymond's No. 1 and 2 TREADLE MACHINES for Families, Dressmakers, and Manufacturers

AGENTS WANTED.

CHIEF DEPÔT FOR EUROPE AND EXPORT:

11, MOUNT PLEASANT, LIVERPOOL.

P. FRANK, AGENT.

ESTABLISHED 1863.

BAER & REMPEL'S New "Rotary Hook" Sewing Machine.

(W. & W. PRINCIPLE, NEW AND OLD STYLE.)

THE NEW STRAIGHT NEEDLE MACHINE "PHŒNIX" (Nos. 8 & 10).

1. **PHŒNIX La A.** (No. 8). For family use and light manufacturing purposes.
 2. **PHŒNIX La B.** (No. 10). Heavy manufacturing machine for tailoring, upholstering and heavy corset work.
 3. **PHŒNIX La C.** New high arm machine, medium size, having mechanical movements similar to the No. 10 machine, for family use and manufacturing purposes.
 4. **PHŒNIX HAND MACHINE.** On iron or wooden base.
- La SILENCIEUSE, Curved Needle Machine** with improved feed.

Our **PHŒNIX** machines are provided with a loose wheel for bobbin winding, the bobbin is very large and capable of holding more thread than any other family machine. The machines are absolutely noiseless and light running.

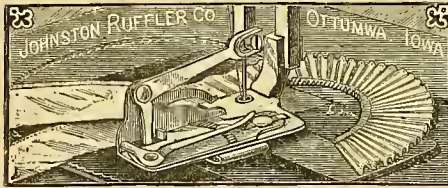
PRICE LISTS AND FULL PARTICULARS ON APPLICATION.

General Agency for the United Kingdom—

C. LOHMANN,
43, LONDON WALL,
LONDON, E.C.

BAER & REMPEL,
BIELEFELD, GERMANY,
Sewing Machine Manufacturers,
(ESTABLISHED 1865).

THE JOHNSTON RUFFLER.

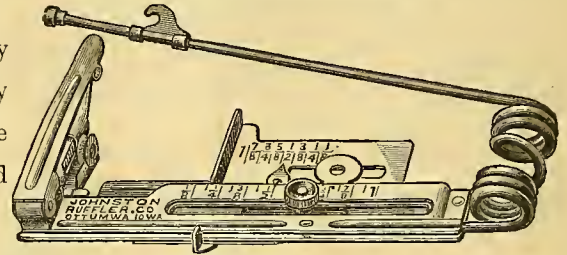


Indorsed and adopted by the Singer Manufacturing Company in the U.S.A., and all first-class sewing machine companies, as the best and most useful sewing machine attachment ever invented. No sewing machine is complete without one. Every Ruffler warranted

For sale by all sewing machine agents.

THE NEW JOHNSTON TUCK-MARKER.

The Johnston Tuck-Marker has recently been improved by using a flat blued tempered Steel Spring to give the necessary elasticity. With this improvement, (1) no oil is used, (2) more uniform pressure is secured, (3) the wheel is rolled back and forth over the goods, thereby making a smooth crease.



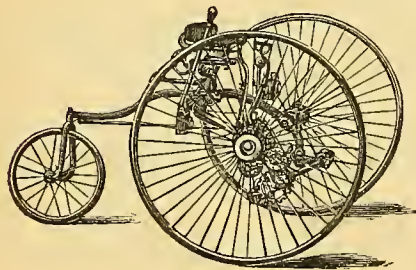
All other Tuck-Markers leave the goods more or less drawn and indented where it is struck by the notch and blade. This Tucker is altogether in advance of anything heretofore placed upon the market. The mechanical workmanship on it is equal to that of a first-class sewing machine.

PRICES, DELIVERED IN LONDON:—

Rufflers, per gross ... £10 0 0 | Tuckers, per gross ... £4 5 0

Send orders to JOHNSTON RUFFLER COMPANY, Ottumwa, Iowa, U.S.A.

THE "RAPID" TRICYCLE



Is the best hill climber ever known.

Its speed is greater than ever before attained.

It is propelled with greater ease than any other Tricycle.

Its brake power is ample, and easily applied.

When descending hills the rider is at perfect rest, and has the most absolute control of the machine.

It is free from complications, and not so liable to get out of order as other Tricycles

It is made of the best materials and workmanship.

It is very light, but strong and durable.

Its Seat and Handles are adjustable to riders of any size.

It will go through a passage, *twenty inches* wide.

It is very moderate in price.

All who have tried it agree in saying it is simply perfect, and

HAS NO EQUAL.

Illustrated and descriptive Price Lists (also of their celebrated "Rapid" and "Dispatch" Bicycles on application to the Patentees and Manufacturers,

THE ST. GEORGE'S FOUNDRY COMPANY, POPE STREET, BIRMINGHAM.

THE LARGEST

SEWING

Machine "Belt"
Manufacturers.

THE LARGEST SEWING

MACHINE

Oil
Manufacturers.

THE LARGEST SEWING MACHINE

FITTINGS

Warehouse.

Bishop's Cluster Company, Limited, 25, Hamsell St., London, E.C.

TO INVENTORS. GENERAL PATENT OFFICE

ESTABLISHED 1830.

G. F. REDFERN,

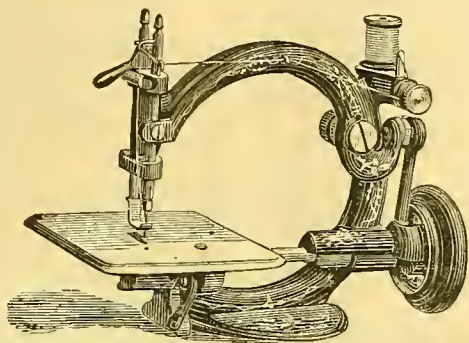
(Successor to L. De Fontainemoreau & Co.),

4, SOUTH STREET, FINSBURY, LONDON;

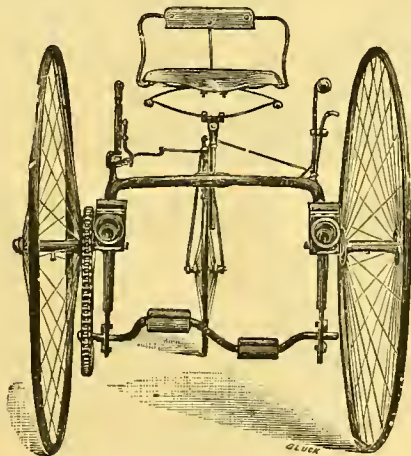
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PARIS AND BRUSSELS.

Provisional Protection, £7; French Patent, £7; Belgian, £8;
German, £10 10s.; United States, £17 10s. Designs and Trade
Marks Registered. Circular gratis on application.

CHARLES J. THURLOW,MANUFACTURER OF
SEWING MACHINES.Either for Hand, Treadle, Stand, or Power.
Lathes from 3½ inch upwards.39, CHESTER STREET, HULME,
MANCHESTER

THE "EXPRESS" TRICYCLE FOR 1883.

FOR A LADY OR
GENTLEMAN.All sizes £12 each.
Lamps 10s. EXTRA.The Cheapest Machine ever offered to the Public.
SPECIAL "EXPRESS" BICYCLEThis Machine is sent out COMPLETE, with Ball Bearings to both wheels
spanner, oil can, and patent alarm bell. Weight of a 50-inch, 40lbs

PRICE:—			
44-inch	£7 0 0	52-inch	£8 0 0
46 "	7 5 0	54 "	8 5 0
48 "	7 10 0	56 "	9 0 0
50 "	7 15 0	58 "	9 15 0
Hollow Forks		10s. extra.	

J. DEVEY & SON,
TOWER WORKS, WOLVERHAMPTON.
PRICE LIST FREE.

THE BUGLET.

PRIZE MEDAL.

**THE BUGLET.**

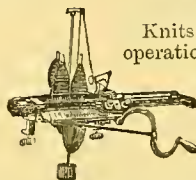
PRIZE MEDAL.

The only Bugle ever made having 4 turns. *The Easiest, Best, Smallest, Cheapest, Strongest.* 6 inch by 2, oval, 4 Turns. Over 2000 now sold. Brass, 17 6 Copper, 18 6; Special Club, 20/-, 21/-; Nickel, 23/-, 26/-; Silver Plated, 30/- Engraved 42/-; Prizes, 2 to 3 Gs.; Valves for Buglet, 27 6; 1 Turn Bugles, 3/- 2 Turns 4 6; 3 Turns, 6 6; Oval, 6 6 to 8 6; New Model Round Bell, 9 6; Oval Bell, 2 Turns, 12 6; 3 Turns in C, 14 6. Send for New Lists, Testimonials, 100 Illustrations. Agents' New Show Card.

The Largest Makers of Horns and Bugles in England.

HUNTING, STAG, DOG, COACH, MAIL, BEAUFORT, DRAG, TANDEM POST SADDLE, WHIP, KOENIG, BICYCLE, TRICYCLE; &c., HORNS. Hunting Horns, ordinary, from 5/- Superior Solid German and other Special Styles, from 10/-; Silver Mounts from 20/-; Sterling Silver from 3½ Guineas; Mail Horns; ordinary German Silver Mounts and Mouthpiece, and solid wire on Bell, from 10 6 superior, 12-in. Ferrule, &c., from 15/- Keat's Special, 3½ Reil, Ribb; or Solid German Silver, from 20/- Keat's Telescope, model, from 25/- Cases Baskets, Engravings, Inscriptions, Repairs, and all Fittings. Gratis with Purchase, "Instructions to Learn Bugles and Coach Horns, Four Pages, or Post Free, 2 Stamps.

THE BICYCLIST'S CORNET; 7 by 4½, from 3 Guineas. Also for all other Musical Instruments, to **HENRY KEAT & SONS** (Inventors of the Buglet), Manufacturers, Government Contractors, and Export Factors, 105, MATTHIAS ROAD LONDON, N.

STOCKING KNITTER.

Knits Ribbed or Plain, any size, 2 Stockings at one operation. Knits every variety of Jackets, Petticoats, &c., Cardigan, Fancy or Plain, exactly same as hand.

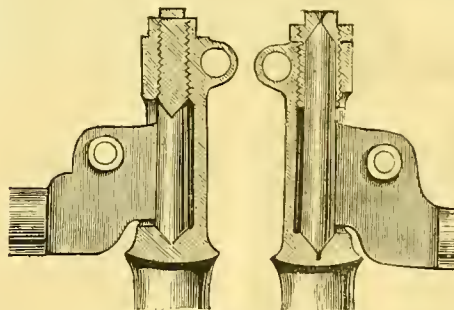
This Knitter obtained the First Prize over others in competition at the Woollen Exhibition, Crystal Palace, London, 1881. 21 New Improvements. List 1d. stamp.

W. HARRISON, Patentee,

128, PORTLAND STREET, MANCHESTER.

ANDREWS' IMPROVED HEAD.

(SEE ILLUSTRATION.)

**RECENT CONTESTS WON ON ANDREW'S MACHINES.**

Aston, Birmingham.—"The Speedwell Challenge Cup" for 10 miles, by C. A. Palmer.

Liverpool.—North of England Challenge Cup, 5 miles, and 2 miles open.

Isle of Man.—1, 2, and 5 miles Handicap, from scratch.

Lincoln.—Two Miles Handicap, from scratch, by F. Clarke Manchester.

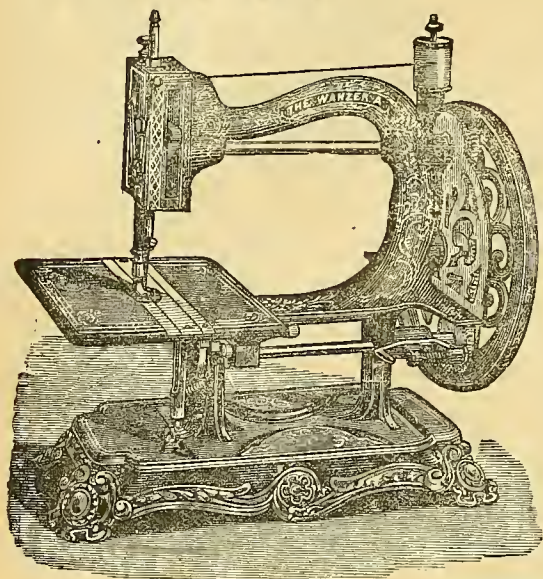
Glasgow, Queen's Park.—The Two Miles from scratch, by Lamb, of Edinburgh.

WM. ANDREWS,

Maker of the Celebrated "Sanspareil" Bicycle,
STEELHOUSE LANE, BIRMINGHAM

Agents.—W. N. Patterson, 36, Deansgate, Manchester; Messrs. Robinson & Price, Pembroke Place, Liverpool; Messrs. Edgell & Co., 60, Northumberland Street, Newcastle-on-Tyne, where a Stock of the above Machines may be inspected.

THE "WANZER



WANZER "A"

IS THE

Great Mechanical Success of the Age.

It combines all the known advantages of other Machines. Mounted on Ornamental Iron Base, Four Guineas complete.

LOCK-STITCH, HAND OR FOOT, SEWING MACHINES.

First Prize Medals, Honours & Awards, wherever Exhibited.

THE NEW "LITTLE WANZER."—Entirely reconstructed and improved. Nickel-plated, Loose Wheel, New Patent Shuttle, Take-up Lever and Spooler. £4 4s.

WANZER "A," Simplicity Itself.—The most powerful yet light running Hand Machine, straight race. £4 4s.

WANZER "C" Light Foot Family Machine, entirely New, with every improvement up to 1879. £6 0s.

WANZER "F" Family Machine, with Reversible Feed and Stitch Lever. £7 10s.

WANZER "E" Wheel Feed Machine, for heavy work of all kinds £8 8s.

WANZER PLAITING, KILTING AND BASTING MACHINES,

Over 200 varieties of perfect Plaiting or Kilting, from 30s. complete. *The only Machine Kilting and Basting at one operation.*

The Wanzer Sewing Machine Company,
LIMITED,

**Chief Office—4, GREAT PORTLAND ST.,
OXFORD CIRCUS, LONDON, W.**

AMERICAN B.H.O. & SEWING MACHINE Co. PHILADELPHIA,
MANUFACTURERS OF THE

AMERICAN BUTTON-HOLE MACHINE
AND

NEW AMERICAN SEWING MACHINES.

The trade is respectfully informed that the **NEW No. 7 MACHINE** is now ready for delivery.

SEND FOR ILLUSTRATED LISTS.

HEAD OFFICE: 8, Gallowtree Gate, LEICESTER.

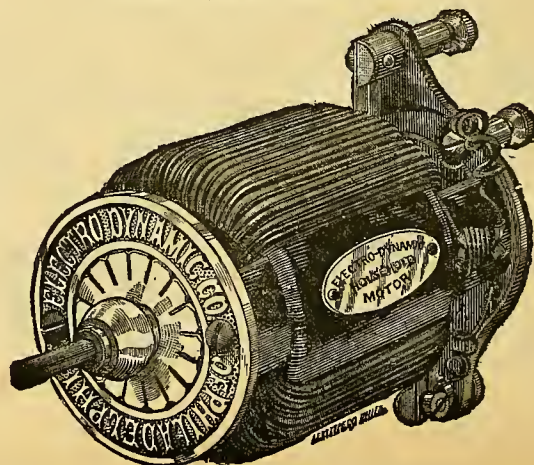
GRISCOM'S Electro-Motor & 'Automatic' BATTERY.

Complete Apparatus for Driving any Sewing
Machine, Dental Lathe, &c., £6 5 0

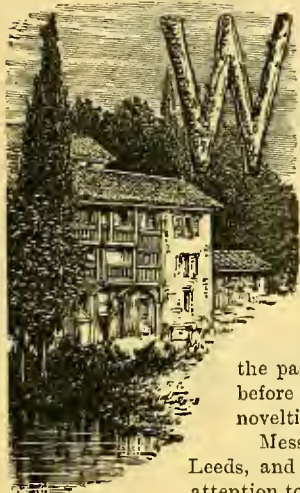
Packed and Delivered in London.

For Trade Terms, Patents, Agencies, &c., apply to
THE ELECTRO DYNAMIC COMPANY,
2, SCOTT'S YARD, BUSH LANE,
CANNON STREET, LONDON, E.C.

First Prize Medals Paris and Philadelphia, 1881
and Crystal Palace, 1882.



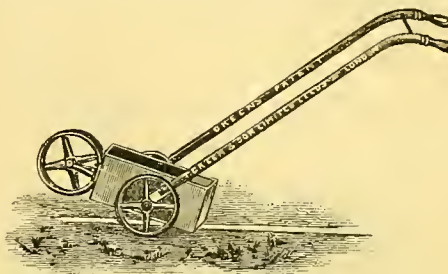
GARDEN APPLIANCES.



WITH the month of February we come to that time of the year when all kinds of gardening tools are in much demand. We do not mean to say that the frost has altogether bidden adieu and that "Richard is himself again"; but, that in the Hardware trade, retail Ironmongers are now buying garden appliances, and are also looking out for the newest and best inventions. Manufacturers have not been idle during the past winter, and we are able to place before our readers descriptions of many novelties.

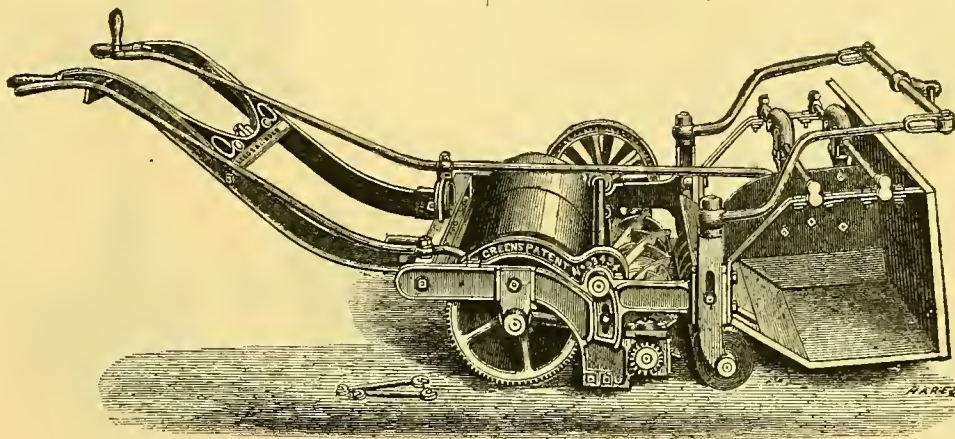
Messrs. Thomas Green and Son, of Leeds, and of the Blackfriars-road, call our attention to their new inventions, several of which are hardly yet placed on the market. To begin with they

Another novelty is the "Multum in Parvo" lawn mower, especially made for small gardens, which is a very handy little machine. Now that lawn tennis is so general, it is not surprising that several machines have been invented for marking out the courts. Every one knows that the white tape and hair pins which are at times resorted to, are but a very troublesome substitute for a good chalk line. In Messrs. Green's machine the novel features



Grass Edge Clipper.

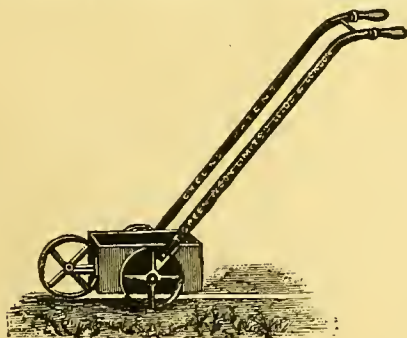
are the simplicity of its design and construction, and the easy manner in which it works when marking out the court. The trough is so constructed that the periphery of the front or marking wheel enters it, and in its revolving motion gathers up the liquid and conveys it to the ground direct for marking purposes, without



Horse Garden Roller.

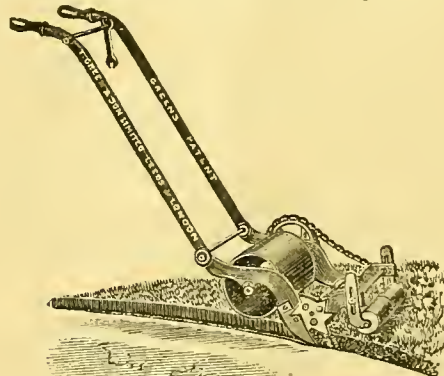
have brought out a new grass edge clipper for cutting the overhanging grass on the edges of walks, borders, flower beds, &c. The material improvement made in it is the driving of the cutter with a chain, same as the "Silens Messor" mowers. This prevents any clicking or sticking fast of the cutter, which is speeded $3\frac{1}{2}$ times

the assistance of an intermediate roller, which therefore secures a whiter line; and when the machine is at rest the trough remains slightly tilted, so that the liquid flows to the back part, and being easily mixed, is thus ready for use. For mowing lawns of large size



Lawn Tennis Marker.

quicker than in the geared machines, so that the clipping is most effectually done by it at an easy walking pace. The result is a great saving of labour, as the edges are cut with much less tediousness than when done with shears.

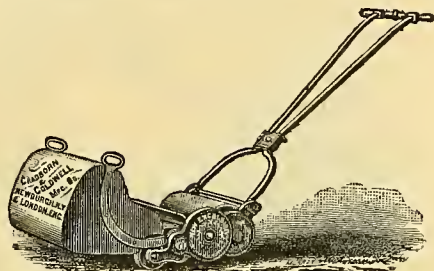


Multum in Parvo Lawn Mower.

Messrs. Green make a machine for horse power, which has a side delivery. The delivery board is fitted with pulleys running on two top guide-roads, which cause it to work smoothly and prevent any liability to stick when in action. For warming hot houses this firm

make a patent tubular saddle boiler which is spoken of by gardeners in most eulogistic terms.

The "Excelsior" lawn mower manufactured by The Chadburn and Coldwell Manufacturing Company, of Upper Thames-street, street, E.C., has also been much improved since last season. This machine cuts the grass perfectly, whether wet or dry, long or short—it works well on slopes and steep embankments, also under shrubs and close up to trees—it makes no "ribs" and does not miss the



"Excelsior" Lawn Mower.

bents, but leave a smooth velvety surface on the lawn. Its gearing is all covered in, so as to avoid damage to flowers or roots, and at the same time to keep the parts free from rust or clogging. The bearings are cast separate from the side frames of the machine and when worn out can be replaced for a few pence. There are no rollers in front of the cutters, and the grass is not, therefore, pressed down before the knife. The cutters are carried from the side frame, dispensing with the spindle through the revolving cylinder, and the handles can be raised or lowered at pleasure, and can be firmly



Patent Saddle Boiler.

fixed in any position to suit the height of the person using the machine.

ADMIRALTY HARDWARE CONTRACTS.

Mr. Collett, director of Admiralty contracts, received on the 9th inst. in Wolverhampton a deputation from the Chamber of Commerce of that town. The representatives of the trades of the Midlands stated that competition from Glasgow, Newcastle, and other northern centres in the supply of navy hardware stores had become very keen, and requested the reduction of railway rates to the dockyards similar to those they had already obtained upon the army supplies. Mr. Collett promised to move for a reduction, and granted several minor requests tending to relieve the Midland manufacturers in this matter, such as the establishment of central depôts.

MESSRS. GARTON AND KING, of Exeter, announce that Mr. M. J. Munk, wholesale ironmonger and valuer, has joined the firm and henceforth the business of Garton and King, Webber, Son and Co., will be carried on under the style of King and Munk, at 190, High-street, and Exeter Foundry, Waterbeer-street, and at 21, 22, and 23, Waterbeer-street, now Webber, Sons and Co.

RUSSELL'S CORK WITHDRAWING APPARATUS.

Mr. F. W. Russell, of 177, Upper Thames-street has invented a



simple and ingenious arrangement for drawing corks from bottles

As will be seen by the illustration a piece of string is fastened round the cork in such a manner that there is left a loop on the bight of which a piece of metal is fastened. This is to prevent cutting the fingers. The string is loosely spun, so that it flattens completely into the sides of the cork, without in anyway making it less air-tight. By this invention the cork is drawn entire without in any way being damaged.

NOVELTY IN DOMESTIC LIGHTING.

M. Trouvé has recently brought forward some pretty designs for a mixed system of domestic lighting, in the form of ornamental candelabra, which have incandescent-lamps, as well as sockets for ordinary candles. Both candles and lamps may be lit together, but it may happen that the candlelight is desired without the lamps. Most batteries and accumulators are applicable for the lamps, says the *English Mechanic*; but M. Trouvé has devised a battery of a very few elements, which may be placed at a distance, or in the body of the candelabra, and which acts regularly a great number of consecutive and even alternate hours; there is no waste when the lamps are unlit.

MESSRS. PIPER AND THEOBOLD, wholesale ironmongers, Norwich, have taken into partnership Mr. A. Johnson and Mr. G. J. Burton,

COLOURING AND FINISHING BRASS WORK.



To prevent the every day rusting of brass goods, the trade has long resorted to means for protecting the surface from the action of the atmosphere, the first plan of which is to force a change to take place. Thus, if brass is left in damp sand, it acquires a beautiful brown colour which, when polished with a dry brush, remains permanent and requires no cleaning. It is also possible to impart a green and light coating of verdigris on the surface of the brass, by means of dilute acids allowed to dry spontaneously. The antique appearance thus given is very pleasing, and more or less permanent. But it is not always possible to wait for goods so long as such processes require, and hence more speedy methods become necessary, many of which have to be further protected by a coating of varnish. Before bronzing, however, all the requisite fitting is finished, and the brass annealed, pickled in old or dilute nitric till the scales can be removed from the surface, scoured with sand and water, and dried. Bronzing is then performed according to the colour desired; for although the word means a brown colour, being taken from the Italian *bronzino*, signifying burnt brown, yet in commercial language it includes all colours.

Browns of all shades are obtained by immersion in solutions of nitrate or the perchloride of iron; the strength of the solution determining the depth of the colour. Violets are produced by dipping in a solution of chloride of antimony, or of permuriate of iron. Chocolate is obtained by burning on the surface of the brass moist rod oxide of iron, polishing with a very small quantity of black lead.

Olive green results from making the surface black by means of a solution of iron and arsenic in muriatic acid, polishing with a black lead brush, and coating it, when warm, with a lacquer composed of one part lac varnish, four of turmeric, and one of gamboge.

A steel grey colour is deposited on brass from a dilute boiling solution of muriate of arsenic, and a blue by careful treatment with strong hydrosulphate of soda.

Black is much used for optical brass work, and is obtained by coating the brass with a solution of platinum, or with chloride of gold mixed with nitrate of tin. The Japanese bronze their brass by boiling it in a solution of sulphate of copper, alum, and verdigris.

Success in the art of bronzing greatly depends on circumstances, such as the temperature of the alloy or the solution, the proportion of the metals used in forming the alloy, and the quality of the materials. The moment at which to withdraw the goods, the drying of them, and a hundred little items of care and manipulation, require attention which experience alone can impart.

To avoid giving any artificial colour to brass, and yet to preserve it from becoming tarnished, it is usual to cover properly cleaned brass with a varnish called "lacquer." To prepare the brass for this, the goods, after being annealed, pickled, scoured, and washed, as already explained, are either dipped for an instant in pure commercial nitrous acid, washed in clean water, and dried in sawdust, or immersed in a mixture of one part of nitric acid with four of water, till a white curd covers the surface, at which moment the goods are withdrawn, washed in clean water, and dried in sawdust. In the first case the brass will be bright; in the latter a dead flat, which is usually relieved by burnishing the prominent parts. Then the goods are dipped for an instant in commercial nitric acid, and well washed in water containing some argol (to preserve the colour till lacquered,) and dried in warm sawdust. So prepared, the goods are conveyed to the lacquer-room, where they are heated on a hot plate and varnished.

The varnish used is one of spirit, consisting in its simple form of one ounce of shellac, dissolved in one pint (imperial) of methylated spirits of wine. To this simple varnish are added such colouring substances as red sanders, dragon's-blood, and annatto for imparting richness of colour. To lower the tone of colour, turmeric, gamboge, Cape aloes, and sandarac are used. The first group reddens, the second yellows the varnish, while a mixture of the two gives a pleasing orange.

A good pale lacquer consists of three parts of Cape aloes and one of turmeric to one of turmeric to one of simple lac varnish. A full yellow contains four of turmeric and one of annatto to one of lac varnish. A gold lacquer, five of dragon's-blood and one of turmeric to one of lac varnish. A red, thirty-two parts of annatto and eight of dragon's-blood to one of lac varnish.

Lacquers suffer a chemical change by heat and light, and must therefore, be kept in a cool place and in dark vessels. The pans in use are either of glass or earthenware, and the brushes of camel's hair with no metal fittings.

AMERICAN MODERN TABLE CUTLERY.



OME great changes have gradually taken place in American homes; the bright, glittering steel fork has long since given place to the plated or silver one, and within the last few years plated knives have largely usurped the place of unplated steel, and, in spite of one or two obvious objections to them, they appeared to be rapidly gaining in favour.

In ordinary British households the steel knife still holds its own, excepting for the eating of fruit or fish, for which purposes silver or plated knives are expressly made and in universal use. In Germany the inferior quality of the table cutlery is a source of constant annoyance, while in France competition with English manufacturers has long been keen. The cutlery of Great Britain carried away most of the prizes for superior workmanship and finish, and even yet the "Rodgers" and other special makes command the highest prices, but within the last 40 years great progress has been made in the United States in this industry. And while the finest and most expensive cutlery is still imported from Sheffield and other centres of English manufacture, an immense trade in domestic cutlery has sprung up, and American knives are found upon many European tables. There are various reasons for this, foremost among them the fact that American machinery enters far more largely into the manufacture of cutlery than England, where the finest steel are forged, ground, and polished by hand, each blade receiving a share of minute and individual attention which is impossible where hundreds are turned out at one time. This individual manipulation enables a workman to detect the very smallest irregularity in the warp of the steel, and to bestow upon each separate piece that passes through his hands the amount of care that is necessary to bring it to the very highest state of perfection. For this reason the trade in English cutlery still shows an increase as far as the finest goods are concerned, and the Sheffield manufacturer stands unrivalled in the highest branches of his art. And again, in turning out very cheap goods, the English factories can still compete satisfactorily with those of America, owing to the greater cheapness of labour; but it is in the vast intermediate field of general supply for ordinary use that we must seek the results of American enterprise.

Of the numberless houses which a few years ago were represented in America for middle class cutlery goods, not one in ten remains, and not only is the home demand supplied by cutlery of domestic make, but very large exports are made to different parts of the world, notably to Africa, Australia, Germany, and Spain. In addition to the great advantages which the use of machinery gives the manufacturer of middle class goods, he derives still further facility from the variety of the materials now used for handles.

The expense of a knife depends very greatly upon the handle, in first-class goods almost entirely so, the same quality of steel being invariably used for the blades, and the price of imported cutlery has increased largely within the last few years upon this account. The handles of the best English knives are invariably made of ivory, and in this article there has been a formidable advance in price. In America, on the contrary, ivory is now comparatively little used, other materials being employed for handles even for the finest knives. Of these celluloid is the most remarkable. The English claim to have been the inventors of this, or of precisely

similar material, which is known as xomite, and a large trade had been carried on by them in celluloid handled knives, but nothing in comparison to the extent to which they are manufactured in America. The basis of celluloid is tissue paper, and camphor enters largely into its composition, together with a pigment of white zinc lead, which gives it the necessary hardness. It is almost impossible to break it, and there is no danger of the unsightly cracks in a celluloid knife handle which are the perpetual torment of the mistresses of Irish servants. Besides celluloid various materials are pressed into service by American ingenuity. Cheap knives have handles of cocobola wood, which is imported from the Isthmus, and in spite of difficulty of transport is very much cheaper than bone. Then we have the ebony handles, the material for which is imported from Zanzibar, carried from the interior of Africa upon the backs of the natives and shipped in immense quantities to America. Rubber handles again play an important part, the royalty upon the patent, which is an old German one and has now elapsed. Many varieties of bone, too, are used, and horn is still in demand for the handles of carving knives and forks. An immense trade is done in the solid steel knives, of which handle and blade are made in one piece. These which are of British manufacture, are imported and plated for the American market. Plated table cutlery is supplied to the Southern States. The appearance of American cutlery is much in its favour. In the cheaper knives metal is used in the handles, and serves both as ornament and rivets, and great attention is paid to the shape both of handle and blade. Some of the most expensive knives and plated forks have pearl handles, curiously cut and twisted. The pearl itself is imported from India and Manilla and cut in New York, where pearl cutting forms a distant branch of the trade. A finely finished knife passes through fifty different hands.

Very interesting facts concerning the cutlery industry relate to the workmen and the efforts made to protect them from the injurious steel filings which enter the lungs. Years ago the mortality among them was terrible; thirty-five years was considered an average life for a dry grinder; and in the English cutlery districts there is very great morality among the hands, owing to their carelessness and reluctance to use the fan which most manufacturers supply for their protection, and also because, except in the case of the largest firms, the manufacture of knives and forks is not carried out to completion in one building, but is often subdivided, forging being carried on in the forgers own home, grinding at the hovel of the grinder, so that visitors to the great Sheffield cutlery districts are surprised and disappointed at the absence of complete factories. In America the case is quite different. Immense cutlery manufactories exist, where machinery of the most improved kind is employed, and where every suggestion for the comfort and health of the workmen is carried out. In these establishments immense "blowers" disperse the steel dust, and the average health of the workmen is as good as that of any other mechanic. There is a fashion in table cutlery as well as in other matters, and demand is now made for plated or silver fish knives and forks, which have long been in general use in England, and are now largely used there, and also dessert knives and forks. This latter, as a rule, have pearl handles, and are very light and pretty.

Medium sized knives are becoming general for ordinary use—that is to say, people use one sized knife for dinner and breakfast and for various courses, instead of having, as was formerly usual large knives for meat and smaller ones for bread and butter, cheese, &c. Carving knives are grooved and curved, pointed and improved in various ways; very often they have the stag horn handles, especially those which are made for the Southern trade, and in carving forks there is a recent improvement, which is of great value, in the shape of a guard, which constitutes a rest when pushed back, and when up is far safer for the curver than the old-fashioned guard.

MESSRS. HORN AND BEACH, ironmongers, have removed from 227 to 204, High-street, Watford.

REVIEWS.

In previous issues we have reviewed the six essays of Mr. Platt—namely, "Business," "Money," "Economy," "Life," "Morality," "Progress." We have now before us "Platt's Essays," vol. I (London, Simpkin, Marshall and Co.) in which we find that Mr. Platt has re-arranged and revised "Business," "Money," and "Economy," and added to them a short sketch of his own life. His three other essays "Life," "Morality," and "Progress," will form another volume. We have previously said, we have already reviewed the original essays; so we shall now more particularly confine our remarks to those portions of the book which are new.

We find that there is an "Introduction" couched in strong, stirring language; and in as much as "example is better than precept," we think that the sketch of his own career—his struggles with poverty—his upward fight with commercial difficulties—will have even a greater influence for good on the reader than even his six powerful hooks.

Mr. Platt says, "a brief sketch of my own career will not be out of place, as coming from one who has advocated what can be done by every man in this world by steady, persistent application and thrift: My father was a Spitalfields weaver, my mother a silk-winder. My father being skilful, became a manufacturer, but he lacked steady application, and was satisfied with the support of a few houses. They were very poor when I was young, and instead of going to a day-school, my time was occupied in turning the handle of the loom my mother used to wind the silk at. My education was obtained at "evening" and "Sunday" schools, until Mr. Wilson offered to take me in his warehouse, if my father would have me taught so as to be equal to the duties. This secured for me one year at a boarding-school. Mr. Wilson having died, and his partner, Mr. Bull, having refused to take me without a premium, which my father could not pay, I began the work of life in 1844, at 109, St. Martin's-lane, aged thirteen. At that time shops were opened at seven, and we juniors had to get up and sweep out the shop, rub down the counters, and clean windows before breakfast; the shop was not closed until eight or nine; then we had to take out parcels. Very little prospect for "self-improvement;" but "where there's a will there's a way," and the little spare time at my disposal was spent at literary institutions. People talk of work hurting one: from 1844 to 1852, my father kept a public house at Horton, and after my week's work I had to walk home, put on an apron, and serve behind the bar till midnight, and on Sundays till 9 p.m., when I had to walk back to St. Martin's Lane. All my life it has been work, incessant work; and work is to me the greatest pleasure in life. From thirteen to twenty-seven, every night was devoted to classes or lectures at institutes; I began at the Western Institute, in Leicester-square, and belonged, at different times, to the St. James's in Cork-street, the Westminster, the Marylebone, the Whittington, and the Birkbeck.

Very interesting is the sketch Mr. Platt gives of his start in business on his own account, of the obstacles that beset it and of the reformation he created in the woollen trade. The "Introduction" concludes with a page or two of sound, practical advice, and when we know, as in this instance that the writer, by the adaptation of his own precepts, has struggled with adversity and gained his ends, we are sure to place more faith in his counsels.

Of the three excellent books here combined in one—"Business," "Money," "Economy,"—we need say only this, that if you have not read them by all means do so. The book before us is clearly printed and strongly bound, and contains that which will be much valued by the many admirers of Mr. Platt's works—a photograph of the author.

MESSRS. LOACH AND CLARKE, brassfounders, of Birmingham, has lately purchased the stock in trade of Mr. W. A. Parker, of 133, Charles Henry-street.

MECHANICAL NOTES.

(From *American Sewing Machine News*.)

There is a process in use for removing blueing from steel by immersing in a pickle compound of equal parts of muriatic acid and elixir vitriol, and afterwards rinsing in pure water and drying with tissue paper.

Excessive hardness can be imparted to metals, and especially steel, by heating them to a cherry red and then compressing with great force, continuing the pressure until the mass is perfectly cold. A striking fineness of grain is also imparted.

The following plan of welding machinery steel—a thing not always of easy accomplishment—has been hit upon after experiment and found to be successful. Two bars were placed together in a strong heat and lightly tapped to make them stick fast. The weld was then put in the fire again, a good heat given, and the scarf thoroughly hammered. The use of borax was dispensed with, and the plan proved completely successful every time.

In case-hardening the charcoal used ought to be finely pulverized and mixed into a paste with a saturated solution of salt. The surface of the article, whatever it may be, should be well polished, and then covered with this paste and dried. Over the paste is laid a coating of clay moistened with salt water, which is also gently dried. The article thus prepared is now exposed to a gradual increasing heat, until it is brought to a bright red, which is a sufficient heat for small articles. In all cases the object is plunged into cold water when it has been heated to the proper degree.

It is said that light nickel-plating can be done by heating a bath of pure granulated tin, argol (crude tartar,) and water, to the boiling point, and adding a quantity of red-hot nickle oxide. Articles immersed in this solution become almost instantly covered with nearly pure nickel. By adding a little cobalt carbonate, or cobalt tartrate, a blueish tint is produced, varying in intensity with the quantity of cobalt used. This process may not be found of advantage in the instance of large quantities of plating, but will be found to work satisfactorily when employed in a small way, for the occasional plating of small articles.

A writer on mechanical subjects advises young mechanics to cultivate the nerves and muscles of each hand so that they can use a hammer, chisel, file, wrench, or any other tool as well with one hand as with the other; or so that they can turn a handle or hand-wheel one way with one hand, and another one the other way with the other hand, both at the same time; or so that they can turn them both one way or different ways at different speeds. Such practice in turning handles will be found indispensable in learning to become an expert on the lathe, planer or other machine tool. All that is required to learn this is a little practice, until the motion of one limb or member is not at all governed or controlled by the motion of another.

Case-hardening, as every mechanic knows, or should know, hardens the surface of iron harder than the hardest steel. There are various methods of performing it, which are simple, the main point being to exercise care in the selection of iron that will be susceptible of polish and free from ash-holes; for it is of course fibre, the hardened surface will be unsound; and if the iron is impure it will be brittle after being hardened. Iron of a close, fine grain is the best for case-hardening. To make doubly sure of its quality the following test may be applied: Heat a piece a little beyond the heat at which it is to be hardened and plunge it instantly into cold water. If it retains its fibre and malleability after this test, and is free from ash-holes, it is safe to conclude that it is entirely suitable for the purpose of case hardening.

A French experimenter named Favé has found that a steel bar magnetized at a temperature of 350 degrees, and then allowed to cool, develops on being heated again, a quantity of magnetism which is sometimes as much as three times the amount possessed after cooling.

When machinery is being prepared and packed for exportation it is very necessary to secure it from the accumulation of rust during the sea voyage. A fairly thick coating of the following preparation will answer the purpose completely: Dissolve one half ounce of camphor in one pound of hog's lard, take off the scum, and mix as much black lead as will give the mixture an iron colour. It should be rubbed on well with a linen cloth.

The fidelity with which trusted workmen often keep trade secrets that have been entrusted to them has received a striking illustration in the manufacture of bronze powder after a process discovered by Sir Henry Bessemer, which has been kept secret for over forty years. Sir Henry prepared working plans for machinery to manufacture this product and had it made piece by piece, at different establishments. With two trusted assistants, he put the works into condition to do the work, and they are still in use. He was afraid to patent his invention, inasmuch as a pound package being so small it could readily be smuggled into use, and its illicit manufacture would be certain. The reason that particular processes of manufacture are sometimes kept secret instead of relying upon a patent for protection can be easily understood.

In hardening drills and other small steel tools they are often dipped in molten lead to heat, and then quenched in water. Some machinist complain that this process leaves a small quantity of lead upon the tools, and also a disagreeable black colour; but the *American Machinist* explains that a dark colour upon drills is not objectionable. What is wanted is durable drills that will do the work required of them, more than appearances. The clinging lead will give no trouble if strictly pure metal is used, melted in a crucible; and if oatmeal is boiled so as to make a thin paste and the drills are dipped in it before heating them in the lead bath they will come out clean. The temper should be drawn in oil rather than in dry air.

There are many degrees of temper in steel that are beyond the range of the tempering colours. A piece of steel that is hardened to its maximum without causing its grain to open, when slowly heated gives no means of knowing how far the softening process has progressed until the yellow colour makes its appearance. But between the white hardened surface and the yellow due to reheating there are many degrees of temper that the tool-maker finds the best for some particular purposes. On the other hand a fine grade of cast steel hardened as above will retain a serviceable degree of temper after being heated to a low and red heat even though left to cool in the open air. Concerning both these degrees of temper but little is known at present.

In welding iron, and in its manufacture, hollow places and flaws often occur, with merely a thin covering over the defective parts. To test the homogeneity of the metal a bar of iron is placed on the equatorial line, and a compass with a very sensitive needle is passed along in front of the bar, the needle pointing at a right angle to it. If the bar is perfectly solid through its whole length the needle will remain steady; but if there should be a flaw or hollow place in the bar the needle will be deflected as it passes from the solid to the hollow place, backward toward the solid iron; passing on over the solid place the needle will come within the range of the solid iron at the other end of the flaw, and will again be deflected forward. If the bar be cut through between these two points of deflection, a flaw will invariably be discovered.

Brass may be thoroughly cleaned by rubbing the surface of the metal with rotten-stone and sweet oil, rubbing off with a piece of cotton flannel, and polish with soft leather. A solution of oxalic acid rubbed over tarnished brass soon removes the tarnish. The acid must be washed off with water, and the brass rubbed with whiting and soft leather. A mixture of muriatic acid and alum dissolved in water imparts a golden colour to brass articles that are steeped in it for a few seconds.

For tempered steel springs the steel should be that called "spring" for large work; that called "double shear" for small work. After hardening in water or oil, the spring is dried over fire and smeared with tallow or oil, and held over the flame of the forge with slow lateral movement so that it will be heated equally until the tallow or oil takes fire. After burning a short while it should be blown out. If any portion of the spring has not been reduced to the proper temperature, the process may be repeated two or three times.

A gentleman of New York has given in the *American Machinist* a hint of practical value in every machine shop. He proposes to utilize the space under a lathe, as follows, and claims two advantages for his arrangement; first, it keeps the floor on which the operator stands clean; and second, it provides a shelf on which the lathe belongings can be kept quite free from chips and dirt; and third it provides a means for depositing the chips quietly at the back of the lathe where they may be allowed to fall on the floor or caught on the box if desired. Two pieces of board the length of the lathe and placed so as to be supported by the legs is about all there is of it. One of these boards is placed aslant and forms an apron down which the chips find their way, while the other forms a shelf for the tools, and is entirely protected from chips and dirt.

FACTS ABOUT STEEL.

Mr. William Metcalf, a steel manufacturer, Pittsburg, concludes a paper read before the Engineer's Society of Pennsylvania with the following summary:

1. That a good soft heat is safe to use, if steel be immediately and thoroughly worked, for it is a fact that good steel will endure more pounding than iron.

2. If steel be left long in the fire it will lose its steely nature and grain and partake of the nature of cast-iron. Steel should never be kept hot longer than is necessary to the work to be done.

3. Steel is entirely mercurial under the action of heat, and there must, of necessity, be an injurious internal strain created whenever two or more parts of the same piece are subjected to different temperatures.

4. It follows that when steel has been subjected to heat not absolutely uniform over the whole mass, careful annealing should be resorted to.

5. The change of volume due to a high degree of heat increases directly and rapidly with the quantity of carbon present, therefore high steel is more liable to dangerous internal strains than low steel, and great care should be exercised in the use of high steel.

6. Hot steel should always be put in a perfectly dry place of even temperature while cooling. A wet place in the floor might be sufficient to cause serious injury.

7. Never let any one fool you with the statement that his steel possesses a peculiar property which enables it to be restored after being burned; no more should you waste any money for nostrums for restoring burned steel. For over-heated steel can be restored by first bringing it to a red heat and allowing it to cool slowly. For burned steel, which is oxidized steel, there is only one way of restoration, and that is through the knobbling fire of the blast furnace.

8. Be careful not to overdo the annealing process; if carried too far it does great harm, and is one of the commonest modes of destruction which the steel maker meets in his daily troubles. It is hard

to induce the average worker in steel to believe that very little annealing is necessary, and that very little is really more efficacious than a great deal.

Finally, it is obvious that as steel is governed by certain and invariable laws in all of the changes mentioned, which laws are not yet so clearly defined as they should be nor as they will be; nevertheless, the fact that there are such laws should give us confidence in the use of the material, because we may be sure of reaching reliable results by the proper observance of the laws; therefore there is no good reason why engineers should be afraid to use steel if they manipulate it intelligently.

BRONZE AND ITS USE.



AUTHORITIES differ about the proportions of copper and tin or other metals used in this alloy. The much-admired Corinthian bronzes of the Greek artists were probably the results of different proportions of white and red or yellow metal. Different colours have been produced by the admixture of various proportions of cold or copper. Japanese bronze, for example, varies from a deep red to the colour of tin, and it is known that the Japanese used the precious metals in their production. The Greek artists had a bronze they called "hepatizon," of a reddish liver-like colour. The colour and the durability of bronze have been equally valued by the artist. Messrs Audsley quote a few authorities on the subject. Dumas, in his "Chimie appliquee aux Arts," recommends a mixture of 100 parts (by weight) of copper, 6 to 7 parts of tin, 6 to 7 of zinc, which produces a bronze of a fine golden colour, highly suitable for artistic manipulation. Gmelin says the best alloy for statues which are to be gilt, is composed of copper 78.5 parts; zinc, 17.2; tin, 2.9; and lead 1.4; and for other castings the bronze should be composed of copper, 91.25; zinc, 5.50; tin, 2.00; and lead, 1.25. Sir Gardner Wilkinson speaks of the skill of the Egyptians in compounding metals. Their implements and vases of bronze have been found most durable, remaining smooth and bright for ages, though exposed to damp situations. The Cinque-centists were great artists in bronze, and the Renaissance produced many splendid works in this alloy. The Chinese and Japanese were also great workers, and for delicacy of design and workmanship the Japanese bronzes cannot be surpassed. The colossal statue of Buddha, at Kama Koura, is a remarkable specimen of the bronze caster's art, and was executed in the 13th century. One question, of even greater importance, is the durability of this material in atmospheres charged with smoke. In London the large bronze castings and figures have here and there shown clearly the evidence of decay. The softer parts of the metal have been eaten away, and small pin-like holes have been formed in them. Such deterioration is partly attributable to the want of homogeneity in the metal, in consequence of the different degrees of the fusibility of the copper and tin. We are still in comparative ignorance of the chemical action upon some bronze castings though it is certain the acids in the atmosphere of large towns are not favourable to them. Probably, "phosphor-bronze," which contains a small proportion of phosphorus in its composition, resists the effects of the atmosphere the best. As a material in architectural decoration, it would be desirable to know a little more of the qualities of this alloy. For external purposes, such as doors, panels in pilasters, friezes, and other ornamental features, the value of relief in this material cannot be over-estimated. A bright-looking bronze imparts a richness to a stone building which no other material can give so well; and if architects could be more certain of its durability, and its cost were less an obstacle to its employment, there would be a reasonable motive for reviving its use as a decorative material.

Mr. S. THORN, of Tarmouth, I.O.U., has sold his ironmongery business to Mr. W. Longman, of Ryde.

COMMERCIAL TRAVELLERS.



WE are all more or less travellers. We may not have visited arctic regions, or wandered far south into warmer countries; indeed, we may not have ventured out of this "tight little island," and our journeyings may only have been a few miles daily to business to and from the city, and an occasional excursion to Margate or Brighton. Still, we are travellers, and the more we travel the more glad we are when our journeyings are done. A little may be pleasant, but we are generally thankful when we can settle down at home, no longer having our equanimity disturbed by the bustle and hurry of catching trains and the trouble attending a journey. If the reader of these lines be contemplating a trip down the Rhine or any such pleasant excursion, he may doubtless have a different opinion; but I think when he returns home he will find the few last miles in the railway train somewhat tiring and tedious, be the springs of the carriage ever so flexible or the cushioned seat one of the softest. A continuous moving on is very wearying, very tiring,—and no one feels it more than the commercial traveller. It may be said that use is second nature; but then it must be borne in mind that the "commercial" travels at all hours of the night and is often in the early morning journeying to his next town, while we, enjoying the luxury of our beds, are wandering in the land of dreams. The traveller has also a hard day's business to get through, its success depending on his energy, perseverance and tact. His life is perhaps as varied as the pictures of a kaleidoscope, but it is not so pleasant or gay as many suppose.

The past fifty years have brought great change into his life. Railways and keener competition in trade have so altered his method of doing and his social customs, that were one of the old school of commercials suddenly to rise from the grave and again take to "the road," he would find all so changed that he would be unable to do more than hold up his hands in mute astonishment and deprecation. Where would be the "Wonders," the "Tallyho's" and the "Taglionis"—the wonderful fast coaches of those days? Where would be the post-chaises in which many a night he had been driven down long winding roads to quiet country inns? Where would be the stout jovial landlords, the buxom landladies, who had given him such hearty welcome? Where most of all would be those old cronies—comrades of the road—with whom he had cracked many a joke, or pleasantly discussed the topics of the day, while sitting on a winters night o'er the blazing fire, or sauntering through the quiet town in the cool summers eve? These have all passed away, and the old order has given place to new. Perhaps it is best that he lies in the churchyard, insensible to the changes time has wrought in the occupation that once was his. The iron steed may shriek and howl, as it passes by, but he hears it not; the old hotel, his favourite haunt, may be "done up" and refitted with every modern improvement, but he sees it not; the electric current may in a few seconds transmit orders it would have taken him days to send, and the cordial and hearty welcome given by the tradesman to those of his calling is reduced to a few short business sentences; but he is dead to all this; and surely it is best, for his occupation, like Othello's, is gone.

There are three kinds of "commercials," Town, Country and Foreign. The former start out in the morning to return at night, and like Dr. Watts' busy bee they "gather honey all the day," in the shape of orders from the customers on whom they call, their garden of opening flowers being the town in which the business is situated, together with its suburbs. The Country travellers are generally "on the road" from three to six months and they usually take some specified ground, such as the north or south of England, or they may have to visit the canny Scot, the slow paying Welshman or the troubled Irishman. Foreign travellers occupy the highest position of the three. They, of course, must know several languages, and speak them rather more fluently than most young ladies do their school taught French. They do not go "round the world in eighty days" like the actor of the stage, but are generally gone two or three years, or it may be even more ere their eyes meet

again the welcome sight of the white chalk cliffs of Old England. By far the largest in number are commercial travellers who go up and down the country. We see them constantly around us—indeed, we cannot walk the streets of any country town between Land's End and John-o-Groats, but that they are there before us followed by man and barrow conveying their bulky samples. We notice them in shops, generally down at the farthest end where they are showing their most tempting lines and eagerly booking orders. We meet them on the railway platform still followed by their cumbersome samples; and we wonder how it is they can settle down in a corner seat unconcerned about their valuable luggage, till, we see at the window respectful "boots" touching his hat in acknowledgement of the gratuity given him for his care of the samples and for sundry polishes bestowed on the traveller's under-standings. But, where we never see these travellers is in their homes—that is in the "Commercial Rooms" of their hotels, for these are their homes nine tenths of the year. I wish to take the reader into the privacy of the commercial room, and in spite of the landlords very wise objection to allow none but "commercials" to enter its sacred precincts, I will show him the peculiar social customs and the general hotel life of this wandering class of business men.

Commercial travellers are very polite, courteous and genial to one another. In the "Coffee Room" of an hotel one enters and leaves without one word of salutation or adieu, its occupants being treated as distant strangers; friends talk to each other in low muttering tones, and there is an air of cold reserve on most of the company that makes those who would be sociable anything but comfortable. It is far from being so in the Commercial Room. A "Commercial" can converse with his neighbour without being thought intruding, and he is always sure of a courteous reply. It is, however, at the commercial dinner that their peculiar social customs are most noticeable. To this meal which generally takes place about mid-day, the majority of the travellers come in from their business in the town. They choose from amongst themselves a president, to occupy the head of the table; he is usually the traveller who has been longest in the hotel, youth or age having nothing to do with the matter. It is his duty not only to carve the leading dishes, but to keep conversation going, and if he does not "set the table in a roar," he must keep his neighbours supplied with agreeable chat. The president always drinks the health of the company, and the company, of course, think it only right to return the compliment. The majority of hotels have now what are called "free tables," so the president does not as he used to, order wine for all, the bill being equally divided amongst all the diners. The commercials purse is not so long as formerly, so "wine dinners" have nearly died out. The few "wine houses" remaining are chiefly in the South of England. At those wine tables the president could order what he choose, perhaps just saying "gentlemen shall it be so and so," and if he happened to be a wine merchant who supplied the hotel, the bill at the end of the dinner was certain not to be a very light one. It was a most unfair system, for the abstemious follower of Sir Wilfred Lawson had to share equally in expense with the largest drinker. However, whether it be a wine table or not the president is always treated with much respect. No traveller with any breeding would either sit down late or rise ere the dinner was finished without first asking "Mr. President's permission," and also when the meal is finished they wait for him to leave the table ere rising themselves. In many hotels a plate is passed round at the close of dinner, and into this each puts one penny, the amount thus collected being equally divided and put into money boxes for the benefit of charitable institutions supported by commercial travellers, one of these being an excellent school for the children of deceased or unfortunate members of their own body. At an anniversary dinner of this institute Charles Dickens presided in 1854, making a most eloquent speech which is now remembered with pride by many gentlemen of the road.

About one of the last men to consult a time table is the "commercial." The majority of trains he knows, and for others, references is made to "boots" the walking Bradshaw, who knows more about them than the entire local railway staff combined. This functionary has many other duties to perform besides that—as the Artful Dodger expressed it of "japanning trotter cases." He takes care of travellers samples, provides at a charge of a few shillings a day the man and hand-barrow for their conveyance to the customers in the town; he pulls the boots from off the commercial feet, chalking on their soles the travellers bedroom number and the time he wishes to be called; he supplies uncomfortably large slippers to those who require them; and he awakens you in the morning from the land of dreams with a bang at your door and "half past seven, sir." The occupation of a commercial traveller is not so remunerative as it used to be in the "good old days." The present keen competition experienced in trade does not admit of such large salaries or commissions being paid; however, the usual guinea a day expenses is allowed by most firms. The traveller in the commercial room has the advantage of a lower tariff of charges, quite twenty-five per cent. below that charged to ordinary visitors, and he has no fear of being imposed upon, as a bad reputation would be the ruin of the "commercial" trade of the hotel. Few are keener judges of character than this large body of business men; none know so well how to make themselves agreeable to other people. In their business relations with men they are very shrewd and observant; every one has a weak part in his nature of some description, and this they endeavour to find out. They know that by using a little tact, they make wonderful success in obtaining their desires. They are polite or abrupt, familiar or respectable, grave or jocular according to the temperament of the man they have to deal with. Some can be joked into a good humour and into giving the desired order, others require convincing argument, while a few are so vain as to be susceptible to flattery. The commercial soon perceives which, his long experience having taught him that. When, however, business is done and its cares thrown aside he is a most agreeable companion, and his conversation interesting and instructive. His life of travel, making him acquainted with many strange cities and quaint towns, and bringing him into personal contact with many curious specimens of humanity, has given him a knowledge of this world very different from that of the student who sees it only through books. It has also made him broad in his views, lenient in his judgement, and through it has given firmness to his will, shrewdness and keenness to his perception, he is really as generous in heart as any who stay at home, and are not like him "tried and tutored in the world."



MESSRS. COLLEGE AND BRIDGEN, hardware factors and merchants, of Wolverhampton, have just opened a London office at 15, Holborn Viaduct.

THE business of Mrs. Matilda Toleman (trading as A. and E. Toleman, general and furnishing ironmongers, of Beaminster, Dorset), has been disposed of to her two sons, Messrs. Charles and Robert, who will carry on the business in all its branches in the same name as heretofore.

MESSRS. C. S. P. WOOD AND Co., manufacturers of patent metallic bedsteads and safes, have removed from Bedford-street into extensive premises at Green-street, Deretend, Birmingham.

Mr. W. BOLTON continues the business of sewing machine dealer, formerly carried on under the title of Bolton and McIntyre, Joy-street, Newcastle.

MESSRS. BAILLIE AND KNOWLES, of Skinner-street, Snow-hill are removing their ironmongery business to new premises (formerly occupied by T. Green and Sons, Limited), at 54 and 55, Blackfriars-road.

MESSRS. ALFRED NEWMAN AND Co. have commenced business at No. 19, Maddox-street, Regent-street, as mediæval smiths and decorative metal workers. Among their specialties will be ancient and modern wrought-iron work, lamps, lanterns, brackets, &c.

Mr. ALFRED PARKES (late Spargo and Co.), japanner, tinplate and metal worker, Zoar Works, Wolverhampton, has engaged the services of Mr. Thomas Waite, late of the Pilgrim Mills, Turnegate, Leeds, as works manager.

Mr. LEON CLERC, of 48, Commercial-street, Spitalfields, with a view of developing his ironmongery and glass trade, has, in addition to the above premises, taken the warehouse adjoining them, namely, No. 46, Commercial-street.

Mr. T. H. BROOKE HITCHING, manufacturer of perambulators, of 19, Ludgate-hill, has taking additional premises in Ludgate-square, in rear of his first shop and of Nos. 21 and 23, Ludgate hill. These premises are being adapted for trade show rooms for the "Go-ahead" perambulator, baby walkers, &c. Mr. Hitching has been appointed sole London trade representative for Slack's (Manchester) silver medal patent spring mattresses, invalid couche and patent door-mat boot-cleaner.

MESSRS. LOTZ, ABBOTT AND Co. have removed from Barbican to more extensive and commodious premises at 35, Queen-street, E.C. The following American and Continental manufacturers have established their London house under the agency of Messrs. Lotz, Abbott and Co.: The Marvin Safe Company, New York; the Howe Scale Company, Rutland, U.S.A.; the Meriden Silver Plate Company, Meriden, U.S.A.; Holmes, Booth, and Hayden, Waterbury, U.S.A.; Bradley and Hubbard, manufacturing Company, Meriden U.S.A.; Körner and Co., lamp manufacturers; McGill's patent staple presser and fasteners; and the London Tin-plate Printing Company, Limited.

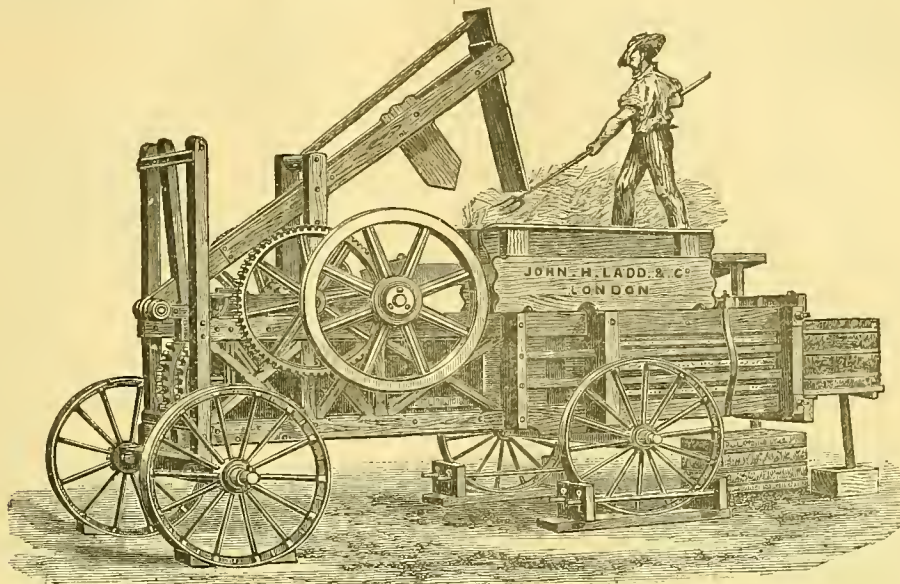
THE nail, chain, and rivet trades in and around Rowley, Blackheath, and Cradley are in full activity, and many firms have conceded an increase in wages to their operatives, owing to the pressing nature of their orders, more particularly those from abroad, the orders on export account being being chiefly from the colonies. The firebrick and retort trade keeps brisk.

FREIGHTAGE ON HARDWARE.—Mr. Evan Nepean, the director of army contracts, has made arrangements which will reduce by 8s. 4d. per ton freightage rates on hardwares sent from the Midlands to Woolwich. Parcels of five tons and upwards will be delivered at Woolwich by barge at the same rate as now delivered in London.

COMPRESSING MACHINES.

Our two illustrations represent two ingenious presses for compressing hay, straw, wool, or any loose material into a small space,

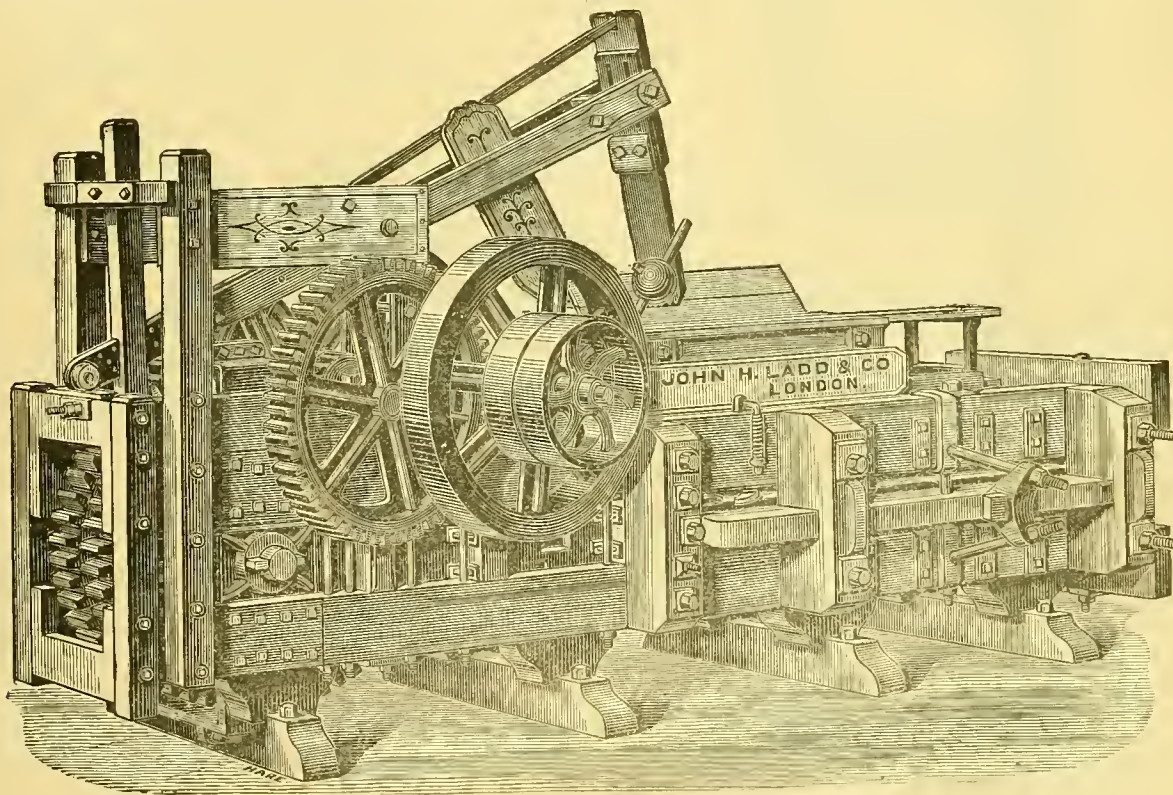
Another of their well-known and valuable machines is the "Perpetual" press forms the bale and discharges it without any assistance than that of a man pitching the loose material into



The "Perpetual" Press.

the object being, of course, to make the materials occupy as little room as possible, and so save freight. These machines which hail

the hopper. The extra belt "Perpetual" is a very powerful machine, and attended by three men, will bale 30 tons per day to a



Extra Belt "Perpetual."

from the land of the star and the stripes, are sold in London by Messrs. John H. Ladd and Co., of Queen Victoria Street.

density of 45lbs. per cubic foot. The Machine is light, yet strong, and can be easily packed for exportation.

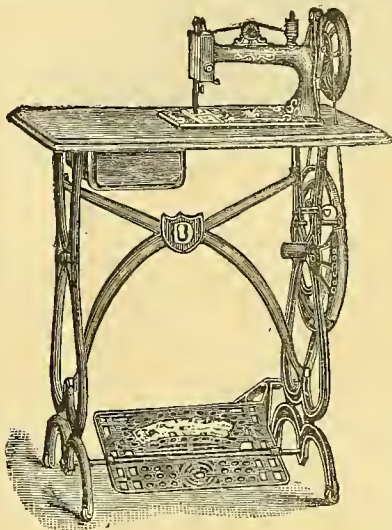
THE VERTICAL FEED SEWING MACHINE.

Beyond dispute, the only really Perfect Machine yet produced.

AWARDED THE
ONLY GOLD MEDALS
AT THE
**SYDNEY AND
MELBOURNE**

EXHIBITIONS

In Competition with all the Leading Machines.

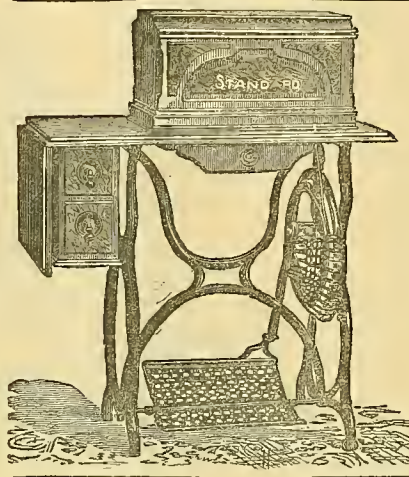


This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the work, and every information, may be obtained at the Offices of the Company.

52, QUEEN VICTORIA ST., E.C.
SOLE ADDRESS IN LONDON.

THE
**LIGHT-RUNNING
STANDARD**
Has No Equal.



**NONE SO SIMPLE,
NONE SO DURABLE,
NONE SO RELIABLE.**

Examine it Before Purchasing any other.

**RENNICK, KEMSLEY & CO.,
4 FINSBURY CIRCUS, LONDON,**
ALSO,
Melbourne and Sydney.

AN opportunity occurs for a young man of good character, a thorough Mechanician, and possessed of some capital, to enter an Established Sewing Machine and Domestic Machinery Business, with a view to partnership. The business is rapidly increasing, and is capable of great extension. References exchanged. Address—Mechanism, c/o Messent & Son, 20, Wormwood Street, E.C.

SEWING MACHINE REPAIRER.

A Trained Mechanic of great experience in Shuttle and Hook Machines, &c., desires to obtain a situation. Certificates and references. Moderate wages. A, c/o Mr. Chamberlin, 3, Stroud Green Road, London, N.

LATHES, FRET SAWS.

BRITANNIA COMPANY, Engineers, Tool Makers, offer 13 varieties of Lathes, price from 55/- complete, to £250. Makers of Lathes to the British Government. Only Address—**COLCHESTER, ENGLAND.**

SURPLUS STOCK.

COVERS for Singer Machine, Panelled Polished Walnut, 6/6. 100 best quality Galvanized India Rubber Wringer, 18/9. each. Best Singer Needles, 4/- per gross; sample on receipt of P.O.O., **BRITANNIA COMPANY, COLCHESTER, ENGLAND.**

JOURNAL OF DOMESTIC APPLIANCES AND

Sewing Machine Gazette.



E have often heard that the sewing machine has a very injurious effect on the health of women. Backache, headache, weakness of the spine, weariness and lassitude—indeed, almost every ill “that flesh is heir to” are as-


cribed very often to it. There is no doubt that when this valuable household appliance is abused—that is, used so as to produce very great fatigue—evil will result. But we cannot believe it produces all the harm that so many suppose, and it is pleasing to note that an eminent American physician takes up the cudgels in its defence. This gentleman says: “I believe that a healthy woman can, not only with impunity but with benefit to herself, operate the improved light-running sewing machines that are made at this time. If the operator is in normal condition, the machine runs with very little friction. If the chair is properly adjusted to the height of the machine and the operator is careful in assuming her position in the chair so as not to bend the back unnecessarily and at the same time allow the easy play of the muscles which are necessarily brought into action, there is nothing in machine, posture, or muscular exertion required to prevent the operator running the machine without fatigue or injury. The spinal column can be very well supported by a correct position in the chair and the posture is an easy one. The motion is principally confined to the feet and legs. The ankle and knee joints, with their sets of muscles, bear nearly all of the strain, while the muscles of the thigh and hip joint enter into the exercise only in a slight degree.” At the present time when our English medical journals are so strongly abusing the sewing machine it is pleasing to find that there are others, equally as learned, who speak in its defence. It has been, and is now such a friend and boon to woman, that we should be very unwilling to see it discarded because of such a fallacy as the chimerical idea that its fair and proper use can be injurious to health. If we were to believe all the whims and follies of medical journals, and to follow their advice, we should scarcely eat or drink anything for fear of being poisoned or of getting indigestion, and we should not undertake any labour or exercise whatever for fear of harm resulting. But we do not believe all their fallacies and especially that of the sewing machine.

A NEW BUTTON HOLE ATTACHMENT.

We have had the pleasure of inspecting by invitation a new “patent button-hole attachment,” invented by Mr. Osidor Nasch, a gentleman well known in the sewing machine trade. The attachment or apparatus, which is simplicity itself, is attached to the head of the machine, no alteration being necessary in the machine itself, and unlike other attachments which we have seen, the needle itself moves laterally and thereby any shape button hole can be made to perfection. It can be applied to any class of machine and used with any kind of material. A great advantage which it possesses is that “the button hole is cut before stitching and a very beautiful perl is thus ensured.” It can be fitted to any sewing machine, and is a marvel of simplicity, and we are informed that it will be sold at a small cost. An extraordinary feature in it is, that by simply turning down a lever, the button hole stitch ceases and the machine remains an ordinary sewing machine without further trouble, and vice-versa. In order to put the attachment in work it is only necessary to raise the lever, and thereby the attachment put into full play, the apparatus being disconnected in and out of gear in less than a minute. The inventor has shown us some very fine specimens of over-seaming and embroidering stitch done by the apparatus. Apart from the button-hole stitch a machine to do such work would alone be very valuable. Mr. Nasch informed us that his invention is patented in all Foreign countries. We saw the apparatus at work on a “White and Singer” machine, and informed that it was then being fixed on a “Howe” as well as a “Wheeler Wilson” machine and other machines. We congratulated Mr. Nasch upon his invention, and as it is

probable that the sales may be counted by hundreds of thousands, we hope he will derive the pecuniary benefit which his ingenious invention so justly deserves. In our next number further particulars will appear.

THE BAILIFF AND THE SEWING MACHINE.

 HERE are many ways of giving vent to one's displeasure when visited by bailiffs; but though it may be a quick and effective way to express your disapproval of their presence by kicking them down stairs, it is not always advisable to do so; and at such times discretion is perhaps better than valour. Thomas Brown, a tailor, was a few days ago committed for trial at Bolton for manslaughter, for being over zealous in attacking two bailiffs who had come to seize his sewing machine. When we state that Mr. Thomas Brown was sixty-one years, one marvels how a being, who is considered to be only “nine-tenths of a man,” could have sufficient strength to haul two county court officers down a flight of steps. He had though, and he did it so effectually, that one of the bailiffs shortly died from the injuries he received. There is little doubt now that this Herculean tailor will have ample time to reflect whether he would not have done better to have allowed the officers to have taken his sewing machine, which, he could have soon got the Court to return him, as it was, of course, a “tool” whereby he earned his living.

OUR ILLUSTRATED SUPPLEMENT.

—:O:—

Messrs. Benham and Froud, are manufacturers of many kinds of domestic novelties, and we illustrate a few of their mullers which are made in polished copper, polished brass or electro-plate and are used for heating tea or coffee, hot water, &c. The small mullers are for family use and the larger for hotels. They are heated by gas.

THE STANLEY BICYCLE EXHIBITION.

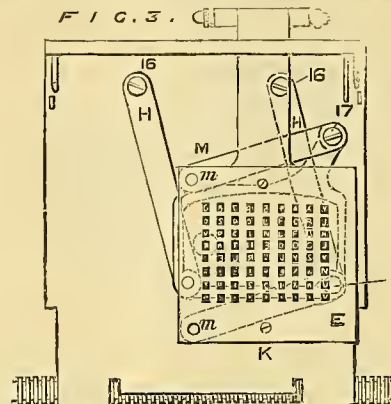
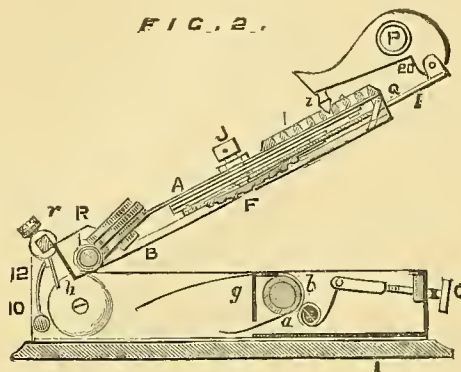
The sixth annual exhibition of bicycles and tricycles, promoted by the Stanley Bicycle Club, was opened on the 29th ult., at the Royal Albert Hall, South Kensington. Mr. Bowan, of Birmingham, the patentee of the *Æolus* ball-bearings, display some capital double forks to back wheels, made in one piece, their other improvements consisting of lightness in their pedals for racing, and minor alterations in the bearings. Messrs. Singer and Co., of Holborn-viaduct, exhibit a new tricycle, called “The Traveller,” built on the Humber lines, and another novelty is “The Tandem.” Messrs. D. Rucker and Company have several fine machines on show, notably their “Roadsters,” one of which has rear-steering apparatus, with double driver and differential gear. Messrs. Marriott, Humber and Co.'s elaborate collection comprise racers, roadsters, and tricycles. The special feature of the Facile Company is that their machines have been considerably lightened, whilst Messrs. Andrew and Co., of Birmingham, exhibit the lightest machine in the show, the total weight being but 18lb. 14oz. Messrs. Hillman, Herbert and Co., have a capital display; and very prominent is the Coventry Machinists' Company, whose stands are occupied by 45 machines, chiefly Imperial, Club, and the Cheylesmore tricycles. Messrs. Weston shows a new tricycle, with central double-driving action; and the London Cycle Supply Association have on view “The Gnat,” a very light three-wheeler. Messrs. Lee and Stodart, in the “Sutton,” have introduced a novel improvement for reducing the width of tricycles; and Messrs. Rudge and Co., make a very good display. The stands of the St. George's Company include several novelties, which was the centre of attraction.

HALL'S TYPE-WRITER.

NOW that the type-writer is becoming so largely used by business men, we think a description of this new machine will be generally interesting. The first point to be noticed in this apparatus is its small size and compactness, and the next, the highly ingenious arrangement of mechanism, by which the various stages necessary to produce a printed page, are effected.

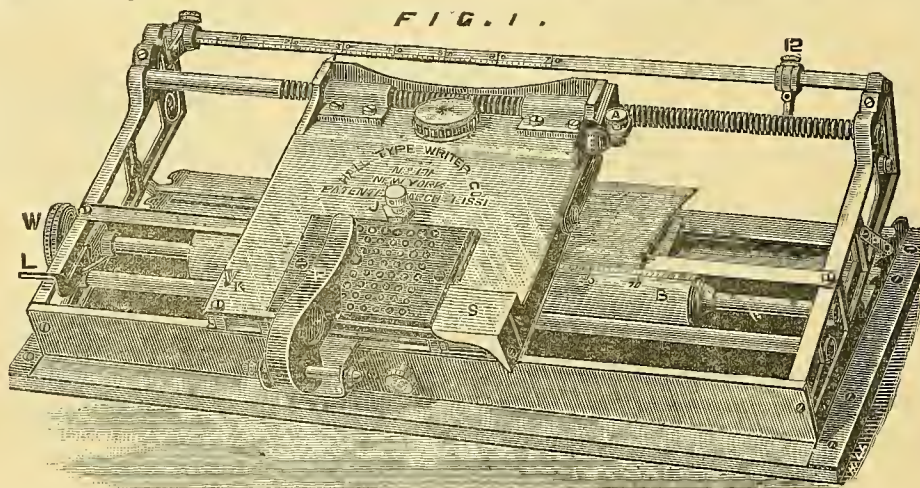
There are two distinct series of motions to be provided for; those affecting the paper, and those required for operating the type. The paper receives no lateral movement, that being provided for in the type mechanism, but it has to be fed upwards at the end of each full or broken line of printing, through a distance suitable to preserve the distinctness of the line.

Besides simplicity and cheapness this type-writer possesses several good qualities. The work can be inspected at any time by



The machine is enclosed in a box 17in. long, 7in. wide, and 3in. deep, and as the total weight is only 5½lb., it will be seen that it is very portable. The illustration gives a fair idea of the apparatus, when standing on a table, with the box opened, and ready for work. The mechanism is carried upon a light bar frame, nickel-plated, hinged to the bottom of the box in front, and provided with pivotted bars at the back, the lower ends of which fit into serrated catches attached to the bottom of the box, so that the frame can be set at any convenient angle for working.

lifting the carriage; a great variety of characters can be employed, and the use of only one key renders the manipulations easily and quickly acquired, for a speed of about thirty words a minute. The workmanship, as is absolutely necessary for mechanism of this class, is excellent, and we should think that this type-writer will meet with as great success in this country as it has done in the United States. Machines can be seen at the office of the Wanzel Sewing Machine Company, 4, Great Portland-street, W., where the inventor can be communicated with.



IMPORTS INTO LONDON.

E. and W. T. Dock and Co., America...	£3,935
C. J. Parsons, Germany	150
F. Stahlschmidt America... ..	21
H. Loog, Germany	562
„ France	600
Becker and Ulrich, Germany	20
Millwall Dock Company, America	469
White Sewing Machine Company, America	775
Davis, Turner and Co., Germany	90
Rennick, Kemsley and Co, America	400
Horne and Crompton, America	440
F. Hornet, America... ..	1362

E. Ralfe, Belgium... ..	130
do. Germany	50
J. Morrisson and Co.	26
S. E. Kilner, Belgium	1131
Rosenburg, Lane and Germany	147

EXPORTS FROM LONDON.

Pera	201 packages
Santanda	31 cases
Oporto	7 machines
Wellington	185 „
Jamaica	1 „
Melbourne	14 „
Seville	6 „



LIQUIDATION BY ARRANGEMENT.

Elliott, G., Durham, ironmonger.
 Devine, J., Rhyl, ironmonger.
 Marshall, T., Loughborough, ironmonger.
 Hickman, K., Ealing, ironmonger.
 Bywater, James, Birstall, Yorkshire, ironfounder.
 Spur, William, Birstall, Yorkshire, ironfounder.
 Tyrer, Peter, Prescott, Lancashire, brassfounder.
 Smith, Hilton, George, Hulme, Manchester, machinist.

DISSOLUTIONS OF PARTNERSHIPS.

Bolton and M'Intyre, Newcastle-on-Tyne, sewing machine dealers
 Alexander and Thompson, Cirencester, ironmonger.
 Chubb and Son, Queen Victoria-street and elsewhere, lock and safe manufacturers.
 Fitzgerald and Barnes, Union-street, Borough, brassfounders.
 Smith, Brothers and Co., Nottingham and elsewhere, brassfounders and finishers.
 Dean, Lawe and Co., Stoke, machine ironfounders.
 Watson and Cockson, Durham, iron manufacturers.
 Wilson, Hooking, Barton and Baker, Tucker-street, Canning Town brass and ironfounders.

BILLS OF SALE.

Bowd, R. W., ironmonger, 111, 112, Fitzroy-street, 167, East-road and 18, John-street, City-road, Cambridge, for £1,549 4s. 4d., to J. Bowd. Filed January 9.
 Bowden, E. E., ironmonger, Holmfild, Kenley, Surrey, for £2,880. Filed January 9.
 Bull, T., ironmonger, 38a and 72, Church-street, Croydon, for £2,381 11s. 8d., to J. A. Gibbs. Filed January 13.
 Davies, F., brassfounder, trading as Davies and Sons, 234, Neath-road, and the Foundry Britonferry, Glamorganshire, for £657 10s. 11d., to T. Williams. Filed January 8.
 Robson, R. G., fender manufacturer, 11, Ryle-road, Sharrow, Sheffield, for £84, to W. J. Clegg. Filed December 27.
 Davis, C. H., trading as Davis and Co., knife cleaning machine manufacturer, Arabella Villa, Hainhault-road, Leytonstone, and George-yard, Aldgate, for £418, to R. A. Triscott. Filed December 21.

HINTS TO REPAIRERS.

By Cog-Wheel in the New York Sewing Machine News.

The object of the writer of this article is to present in a compressed form, for easy recollection and ready reference, suggestions as to what should be done when the operator of the sewing machine encounters difficulties which are not treated with sufficient fullness in the most of the direction books furnished by the companies.

Setting the Needle.

Always have the long groove side of the needle from, and the short grooved side next to the shuttle, looper, or hook, as the case may be. It's eye should be about a sixteenth of an inch below the point of the shuttle, when the needle ascends and the loop is formed.

Length of Stitch.

On fine goods the stitches should be much shorter than on coarse goods. The stitches should never be so short as to cut the fibres of the cloth. The length of the stitches has much to do with the

perfection and elegance of work done by the sewing machine. A good operator will always take pains to use a needle of suitable size for the thread.

The stitch should never be any shorter than twice the diameter of the needle. If the perforations made by the needle are closer together than this, there will be a crowding together of the threads of the fabric, which will make the stitch look bunched and uneven.

To Sew Fine Goods.

Practice and experience are necessary to become expert in sewing fine goods.

The first point to be looked at when a machine works badly in sewing fine goods, depends upon what is the matter with it; we will say it draws the goods—the presser foot may have too much pressure—the feed be too high, or the needle and thread too large.

Remember that very fine muslin, Swiss nainsook, and very fine cambric, take thread from No. 100 to 150, and a needle that will permit the thread to pass freely through the eye.

Too much pressure on the pressure foot will pucker fine goods, also too much tension.

In sewing extremely fine goods regulate the tensions to lay the thread straight on the underside or the upper.

Drawing Down of Thin Goods.

In sewing fine, thin, soft goods, an inexperienced operator is sometimes troubled with its drawing into the needle plate. To obviate the tendency to draw the work down, see that your needle and thread are as fine as they should be, and that your tension is not too tight. It generally happens that too coarse a thread and needle, and too tight a tension cause the whole difficulty. After these are known to be right, if any sign of the difficulty remains, hold the goods a little on the stretch between the two hands, and the trouble will vanish entirely.

Four Things to be Observed in Machine Sewing.

The proper size of thread, and the proper size of needle to carry it; the proper length of the stitch; and the proper tension to suit the work.

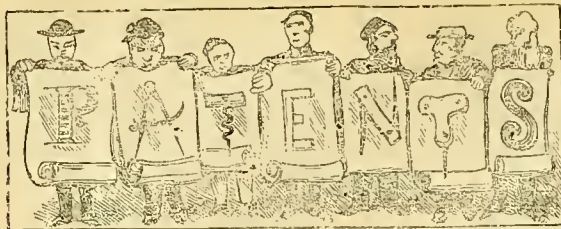
Price 6d. per Dozen.

HIRE AGREEMENT FORMS,

Drafted by Counsel,

Specially for the "Journal of Domestic Appliances."

AGREEMENT FORMS, for the letting out on Hire of Sewing Machines, Washing Machines, Bicycles, Pianos, Gas Stoves, and other Domestic Appliances, can be obtained at 6d. per doz., post free from the office of the *Journal of Domestic Appliances*, 20, Wormwood Street, London.



The following List has been compiled expressly for this Journal, by G. F. REDFERN, Patent Agent, 4, South-street, Finsbury, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT :—

- No. 5938. W. R. Lake—a communication from M. Merrill and J. H. Nolan, both of Boston, Massachusetts, United States, for improvements in boxes and safes, and in the manufacture of fireproof or incombustible materials or compounds to be used in the construction of the same, and for similar purposes. Dated December 12, 1882.
- „ 5940. W. H. Thacker and J. T. Green, both of Nottingham, for improvements in bicycles and similar vehicles. Dated December 13, 1882.
- „ 5945. A. H. Adams, of Handsworth, Staffordshire, Cabinet Brass Founder, for improvements in the manufacture of cup and screw hooks, screw pegs, screw rings, terret rings, hat, coat and wardrobe hooks and pegs, screw knobs, solid brass-headed nails and screws, blind-cord holders, cornice-pole brackets, and similar articles. Dated December 13, 1882.
- „ 5972. T. Rowan, of Palace Chambers, Westminster, London, Consulting Engineer, and Samuel Williams, of Newport, Monmouthshire, for improvements in apparatus for igniting gas, part of the improvements being applicable to other purposes. Dated December 14, 1882.
- „ 5976. J. H. Johnson—a communication from E. C. E. Gallois, of Paris, for improvements in keys or wedges. Dated December 14, 1882.
- „ 5982. T. Smith, of Malpas-road, Brockley, Kent, and J. Drewitt, of Danby-street, Peckham, London, for improvements in brackets or supports for curtain rods, bands, and other similar articles. Dated December 14, 1882.
- „ 5983. R. W. Brownhill, of Walsall, Staffordshire, Manufacturer, for improvements in bicycles, tricycles, and other velocipedes, and in wheel vehicles, whether for use on common roads, tramways, or railways, part of which improvements may also be applied to the transmission of motive power for various purposes. Dated December 14, 1882.
- „ 5990. A. W. L. Reddie—a communication from E. Theisen, of Lindenau, near Leipsic, Germany, for improvements in apparatus for heating water. Dated December 15, 1882.
- „ 5991. O. Pihlfeldt, of Coatham, Redcar, Yorkshire, Mechanical Engineer, for improvements in tricycles, bicycles, and other velocipedes. Dated December 15, 1882.
- „ 5992. H. Hoyles, of Uppertorpe, Sheffield, for improvements in stove grates. Dated December 15, 1882.
- „ 5996. C. W. Gauntlett, of Somers-road, Southsea, Hampshire, for improvements in flushing apparatus for water-closets. Dated December 15, 1882.
- No. 6009. J. M. Hart, of the firm of Hobbs, Hart and Company, of 76, Cheapside, London, for improvements in locks and latches and in parts connected therewith. Dated December 16, 1882.
- „ 6024. A. S. Paterson—a communication from H. A. Harvey, of Orange New Jersey, United States, Mechanical Engineer, for improvements in the manufacture of screw-nuts, and in machinery and apparatus for tapping the same and for screwing bolts. Dated December 16, 1882.
- „ 6025. T. Chadwick, Managing Director, and T. Sugden, Foreman of the firm Bradbury and Co., Limited, of Wellington Works, Oldham, Lancashire, Sewing Machine Manufacturers, for improvements in sewing machines. Dated December 18, 1882.
- „ 6027. J. Woodward, of the firm of B. Walters and Company, of Wolverhampton, Lock Manufacturers, for improvements in the latching bolts of locks and latches. Dated December 18, 1882.
- „ 6028. W. H. Jones, of the firm of Jones Brothers and Company, of Wolverhampton, Japanners. Tin-plate Workers, and Enamellers, for improvements in fastenings for trunks and boxes, applicable also to fastenings for other purposes, such for instance as travelling bags. Dated December 18, 1882.
- „ 6032. A. Tomkins, of 5, Friar street, Doctors' Commons, London, for protecting velocipedists against inclemency of the weather, principally wet. Dated December 18, 1882.
- „ 6035. G. T. Ball, of Swancombe-street, Canning Town, Essex, for improvements in window fasteners. Dated December 18, 1882.
- „ 6048. J. H. Johnson—a communication from C. H. Willcox, of New York, United States, for improvements in machines for sewing straw-plaits or braids or other material in strips into hats or other articles. Dated December 19, 1882.
- „ 6049. R. H. Leask, of Dublin, Civil Engineer and Architect, for improvements in and connected with water-closets. Dated December 19, 1882.
- „ 6063. E. Marshall, of Birmingham, Mechanical Engineer, for improvements in tricycles and other velocipedes. Dated December 19, 1882.
- „ 6067. S. E. Pattison—a communication from W. A. Drysdale and C. W. Bailey, both of Philadelphia, United States, for improvements in electrical gas lighting apparatus. Dated December 19, 1882.
- „ 6068. E. R. Hollands, of 37, Stoke Newington-green, London, for improvements in open stoves or fire-grates. Dated December 19, 1882.
- „ 6069. J. Williams, of Chancery-lane, London, Hot Water Engineer, for an improved safety-valve for kitchen boilers. Dated December 20, 1882.
- „ 6088. W. Cotton, of Loughborough, Leicestershire, Machinist, for improvements in rotary knitting machines. Dated December 20, 1882.
- „ 6094. S. Lee, of Chancery-lane, London, and M. Stodart, of Cannon-street, London, for an improvement in or applicable to certain double driving tricycles and like velocipedes. Dated December 21, 1882.
- „ 6098. B. J. B. Mills—a communication from C. Vernay and F. Roux, both of Lyons, France, for improvements in sewing machines. Dated December 21, 1882.
- „ 6099. J. T. Beston, of Birmingham, Manufacturer, for an improvement or improvements in coal vases or coal boxes. Dated December 21, 1882.

- No. 6104. G. Teideman, of Lancaster-street, London, for improvements in cocks or valves. Dated December 21, 1882.
- „ 6108. R. C. Fletcher, of Tarleton Rectory, near Preston, Lancashire, Clerk in Holy Orders, for improvements in and connected with velocipedes. Dated December 21, 1882.
- „ 6109. W. A. Crommelin, J. Lees, H. Spain and W. H. Thompson, all of 76, Coleman-street, London, for improvements in the construction of ovens heated by gas. Dated December 21, 1882.
- „ 6119. Annie G. Hewett, of Sheffield, for improvements in 'dish covers' or appliances for retaining the heat of joints of meat, vegetables, and the like, and similar purposes. Dated December 22, 1882.
- „ 6121. W. R. Lake—a communication from C. F. Pike, of Philadelphia, Pennsylvania, Engineer, and E. Z. Collings, of Camden, New Jersey, both in the United States, for improvements in and relating to water-closets and sewers, and traps for the same. Dated December 22, 1882.
- „ 6122. W. T. Sugg, of Vincent-street, Westminster, London, Engineer, for improvements in gas fires and in means for ensuring the proper carrying off of the products of combustion. Dated December 22, 1882.
- „ 6123. T. Trotman, of Camden Town, London, Perambulator Manufacturer, for improvements in the construction of folding cot carriages. Dated December 22, 1882.
- „ 6126. E. Hopgood, of Partlands-avenue, Ryde, Hampshire, and E. Jenner, of Belgrave Mansions, Grosvenor-gardens, London, for improvements in apparatus for warming rooms and buildings. Dated December 22, 1882.
- „ 6142. The Honorable J. W. Plunkett, of Dunstall Priory, Kent, and of Park-square, London, for improvements in apparatus for burning gas for cooking, heating, illuminating and like purposes. Dated December 23, 1882.
- „ 6147. F. C. Glaser—a communication from H. L. Blaes, of Ensheim, in the Bavarian Rheinpfalz, Germany, for improvements in tricycles or velocipedes. Dated December 23, 1882.
- „ 6156. J. E. Cope, of Birmingham, for improvements in sash fasteners. Dated December 23, 1882.
- „ 6160. A. Guillaume and A. Lambert, both of Tosses, Belgium, Manufacturers for improvements in sewing machines. Dated December 23, 1882.
- „ 6162. J. Rider, of Clifton View, Bedminster, Bristol, Mechanic, improvements in water-closet apparatus. Dated December 23, 1882.
- „ 6174. W. Morgan-Brown—a communication from O. Belzer, and F. Preller, both of Hanover, Germany, for improvements in door locks. Dated December 27, 1882.
- „ 6178. W. Woods and B. R. Mills, both of Chancery-lane, London, for improvements in velocipedes. Dated December 27, 1882.
- „ 6181. H. F. Read, of Brooklyn, New York, United States, Manufacturer, for parallel visces for machinists' use. Dated December 27, 1882.
- „ 6205. J. Proudley, of Manchester, for improvements in the construction of washing machines. Dated December 29, 1882.
- „ 6217. J. Harrington, of the "Enamel and Cradle Spring Works," Coventry for improvements in velocipedes and in appliances connected therewith. Dated December 29, 1882.
- No. 6222. A. Bradshaw, of Accrington, Lancashire, Engineer, for improvements in cocks or valves for steam, water, gas, or other liquids and fluids. Dated December 29, 1882.
- „ 6227. J. Moore, of New Thornton Heath, Surrey, for improvements in fire-grates. Dated December 30, 1882.
- „ 6236. W. R. Lake—a communication from A. Faugier, of Lyons, France, Bolt Manufacturer, for improvements in machines for the manufacture of screws. Dated December 30, 1882.
- „ 10. J. Cameron, of Lauriston, Inchtute, Perthshire, North Britain, for improvements in tricycles or like machines. Dated January 1, 1883.
- „ 40. H. Clarke, of Leicester, for improvements in machinery and apparatus applicable to stitching or sewing machines. Dated January 3, 1883.
- „ 41. J. Butler, of Birkenhead, Cheshire, for improvements in window-sash and other fastenings. Dated January 3, 1883.
- „ 44. H. J. Allison—a communication from C. H. Carter, of Colborne, Northumberland, Ontario, Canada, for improvements in knitting machines. Dated January 3, 1883.
- „ 52. E. Buckland, of Buckingham-street, Strand, London, for improvements in churning apparatus, the invention being equally applicable for beating eggs, mixing liquids, and other analogous purposes. Dated January 4, 1883.
- „ 54. W. E. Gedge—a communication from C. Guy, of Paris, for improvements in sewing machines. Dated January 4, 1883.
- „ 58. I. Webster, of Kirkstall, near Leeds, for improvements in oil cans. Dated January 4, 1883.
- „ 63. J. Martin, of Sheffield, for improvements in adjustable spanners. Dated January 4, 1883.
- „ 66. J. H. Johnson—a communication from E. Lefebure, of Paris, for improvements in shades for lamps and the like. Dated January 4, 1883.
- „ 73. J. B. Young and W. T. J. Burgess, both of Birmingham, for certain improvements in lamps applicable to velocipedes. Dated January 5, 1883.
- „ 74. J. Betjeman, of the firm of G. Betjeman and Sons, of 36 and 38, Pentonville-road, London, for improvements in fire-screens. Dated January 5, 1883.
- „ 78. W. C. Gordon, of the Langham Hotel, London, for improvements in electric fire alarm apparatus. Dated January 5, 1883.
- „ 80. C. Carter, of 6, Station-road, Clapham Junction, London, for improvements in curling tongs or irons. Dated January 5, 1883.
- „ 86. J. Imray—a communication from R. Leavitt, of Boston Massachusetts, Machinist, and E. Flather, of Bridgeport, Connecticut, both in the United States, for improvements in sewing machines. Dated January 6, 1883.
- „ 95. J. Lee, of Hampstead, London, for improvements in the intermediate parts for attaching various utensils and other articles to their handles, also applicable to other purposes. Dated January 8, 1883.
- „ 102. G. D. Peters, of Bunhill-row, London, for improved apparatus for facilitating the action of spring rollers for window blinds. Dated January 8, 1883.
- „ 105. J. Lewis, of 153, Brockley-road, Brockley, Surrey, Engineer, for improvements in apparatus for regulating the supply of gas and air to gas burners for lighting and heating purposes. Dated January 8, 1883.

- No. 106. H. H. Lake—a communication from A. A. Lamarre, of Mehun-sur-Yèvre, France, Sculptor, for an improved petroleum lamp and apparatus connected therewith. Dated January 8, 1883.
- „ 112. A. H. Bateman, of East Greenwich, Kent, for improvements in valves and taps. Dated January 9, 1883.
- „ 114. J. Brooks, of Birmingham, Manufacturer, for improvements in the construction of saddles or seats of bicycles, tricycles, or other like purposes. Dated January 9, 1883.
- „ 126. J. White, Manager, and J. Asbury, Machinist, both of Coventry, for improvements in velocipedes. Dated January 9, 1883.
- „ 133. J. Allen, of Addington Lodge, Crouch-hill, London, for improvements in gas cooking stoves and burners for boiling or heating by gas. Dated January 9, 1883.
- „ 134. W. R. Lake—a communication from C. M. Platt, of Waterbury, Connecticut, United States, for improvements in rivetting or eyeletting machines. Dated January 9, 1883.
- „ 142. W. Walker, Foreman to M. Walker, of Dunstable, Bedfordshire, Straw Manufacturer, for improvements in sewing machines. Dated January 10, 1883.
- „ 149. W. Barwell, Manufacturer, and T. Johnstone, Machinist, both of Birmingham, for improvements in machinery for the manufacture of screw bolts, rivets, spikes, coach screws, and other like headed articles. Dated January 10, 1883.
- „ 162. J. Shaw, Brass Finisher, and F. Milan, Hot Water Engineer, both of Lockwood, near Huddersfield, Yorkshire, for improvements in the method of and apparatus for indicating the presence or absence of water in cisterns or other vessels in connection with baths and other water apparatuses. Dated January 11, 1883.
- „ 164. C. Coleman, of 366, Oxford-street, London, Perambulator Manufacturer, for improvements in the construction of brake apparatus for perambulators bath chairs, and other analogous purposes. Dated January 11, 1883.
- „ 166. L. Dathis, of Paris, for improvements in a moveable oven producing a concentrated and compensated heat for cooking and baking purposes. Dated January 11, 1883.
- „ 175. W. Morgan-Brown—a communication from H. Martini, of Chemnitz, Germany, for improvements in knitting machinery for the production of coloured fabrics. Dated January 11, 1883.
- „ 177. E. W. Lee, of Wigston Magna, Leicestershire, Hosiery Manufacturer, for improvements in sewing machines. Dated January 11, 1883.
- No. 2939. T. S. Truss, of 11, Riding House-street, Portland-place, London, Civil Engineer, for improvements in valve and plunger, or piston cocks for regulating the transmission of fluids passing through them, applicable for water-closets, urinals, and other purposes. Dated June 21, 1882.
- „ 2958. T. Penn, of Westbury-street, Wandsworth, London, Engineer, for improvements in valves or cocks, and in the means or apparatus for operating the same. Dated June 21, 1882.
- „ 2961. J. Harsant, of Wandsworth, London, for improvements in flushing water-closets, traps, and urinals, and in apparatus therefor. Dated June 22, 1882.
- „ 2964. W. Morgan-Brown—a communication from F. White, of Westboro, Massachusetts, United States, for improvements in velocipedes or tricycles. Dated June 22, 1882.
- „ 2983. A. Reaney, of Sheffield, for improvements in the manufacture of trowels. Dated June 23, 1882.
- „ 3000. G. Dawson and C. Butcher, both of Thorncliffe, Yorkshire, for improvements in kitchen ranges. Dated June 24, 1882.
- „ 3009. W. S. Morton, of Edinburgh, Decorative Architect, for improvements in or connected with domestic or similar fireplaces. Dated June 26, 1882.
- „ 3023. G. Moss, of 46, Barbican, London, Bicycle Manufacturer, for improvements in velocipedes. Dated June 27, 1882.
- „ 3095. H. Conolly, of Hampstead-road, London, and A. E. Hubert, of Chelsea, London, for improvements in overflows of valve closets. Dated June 30, 1882.
- „ 3096. H. Conolly, of Hampstead-road, London, for improvements in water waste preventers. Dated June 30, 1882.
- „ 3110. J. Brownrigg, of Windermere, Westmoreland, Joiner and Builder, for improvements in door furniture, and in the method of securing the same. Dated July 1, 1882.
- „ 3145. C. Priestland, of Birmingham, Tool Maker, for improvements in rack pulleys for blind cords and the like. Dated July 4, 1882.
- „ 3213. J. Thomas, of Bodmin, Cornwall, and C. J. Ennor, of Oporto, Portugal, for improvements in valves. Dated July 7, 1882.
- „ 3229. U. Bromley, G. Crowe and W. James, all of Chester, for improvements in and appertaining to cisterns or flushing apparatus for water-closets, urinals, and the like. Dated July 7, 1882.
- „ 3251. A. M. Clark—a communication from J. E. J. L. Mounié, of Paris, for improvements in ovens for baking bread and other products. Dated July 8, 1882.
- „ 3254. G. Kent, of 199, High Holborn, London, for improvements in knife cleaning and polishing machines. Dated July 8, 1882.
- „ 3287. W. Cheyne, of Briton Ferry, Glamorganshire, for an improved automatic apparatus for regulating the supply of gas to a gas flame, and for lighting and extinguishing the same. Dated July 11, 1882.
- „ 3288. W. R. Lake—a communication from F. L. Veerkamp, C. F. Leopold, and W. Darker, all of Philadelphia, Pennsylvania, United States, Machinists, for improvements in braiding machines. Dated July 11, 1882.
- „ 3324. C. Portway, of the Tortoise Stove Works, Halstead, Essex, for improvements in gas stoves. Dated July 13, 1882.
- „ 3345. J. E. Beal, of Sheffield, for improvements in attaching the bolsters and handles of cutlery. Dated July 14, 1882.

Letters Patent have been issued for the following :—

- No. 2908. W. Combe, of Glasgow, for improvements in drying apparatus, adapted for public washing houses and other situations. Dated June 20, 1882.
- „ 2920. C. L. Hancock, of the firm of F. and C. Hancock, of 29, Oxford-street, Dudley, Worcestershire, Domestic Appliances and Potatoc Washing Machine Manufacturers, for improved construction or arrangement of apparatus for cleaning and for removing the skins from potatoes. Dated June 20, 1882.
- „ 2926. A. K. Robinson, of Leeds, for improvements in cooking ranges and stoves. Dated June 20, 1882.

- No. 3363. C. E. Gibson, of Birmingham, for improvements in hood joints of perambulators, applicable to other purposes. Dated July 15, 1882.
- „ 3368. J. Erskine, of Newton Stewart, Scotland, Gun Maker, for improved apparatus for facilitating the slicing of bread. Dated July 15, 1882.
- „ 3372. J. W. Restler, of Nunhead, Surrey, for improvements in cocks or valves. Dated July 15, 1882.
- „ 3377. T. Smallwood and E. W. Cooper, both of Coventry, Machinists, for certain improvements relating to velocipedes and in part applicable to other wheeled vehicles. Dated July 17, 1882.
- „ 3390. C. Keibel, of Folsong, near Tauer, Germany, for improvements in candle holders. Dated July 17, 1882.
- „ 3437. D. R. Ashton, of Clapton, London, for improvements in cocks and valves. Dated July 19, 1882.
- „ 3471. H. Fielding, of Birmingham, for improvements in knives and forks, and in the manufacture of knives and forks. Dated July 21, 1882.
- „ 3568. J. P. Goss, and F. Savage, both of King's Lynn, Norfolk, for improvements in hoes for hoeing turnips and other crops. Dated July 27, 1882.
- „ 3599. J. Darling, of Glasgow, for improvements in sewing machine needles and in a new and improved needle threading device. Dated July 29, 1882.
- „ 3673. E. Deeley, of Walsall, Staffordshire, Mill Roller, for improvements in the manufacture of wrought iron and steel rods, and in apparatus employed in the said manufacture. Dated August 2, 1882.
- „ 3742. I. T. Townsend, of Coventry, Bicycle and Tricycle Manufacturer, for improvements in the class of tricycles known as "convertible sociables." Dated August 5, 1882.
- „ 3796. W. J. Hinde, of 31, Oseney Crescent, Camden-road, London, Manager of Cabinet Works, for improvements in apparatus for supporting and fixing swing looking glasses, swing ventilators, and other swinging articles. Dated August 9, 1882.
- „ 8801. D. Hummel, junior—a communication from H. Hallström, of Eskilstuna, Sweden, for improvements in the manufacture of cutlery and tools. Dated August 9, 1882.
- „ 3826. A. M. Clark—a communication from I. W. Lamb, of Parshallville, Michigan, United States, for improvements in knitting machines. Dated August 10, 1882.
- „ 3867. H. Podger, of Bromley, Kent, and W. H. Davey, of Highgate, London, for an improved ironing machine. Dated August 14, 1882.
- „ 3993. J. Hopewell, of Salford, Lancashire, for an improved door-mat boot and shoe cleaner. Dated August 19, 1882.
- „ 4236. R. J. George, of Swansea, Glamorganshire, Member of the Institute of Civil Engineers—partly a communication from E. W. George, of Sutna, Central India, Civil Engineer, for improvements in the construction of metallic fencing. Dated September 6, 1882.
- „ 4399. J. Buckland, of Taunton, Somerset, Ironmonger, for a new or improved instrument or apparatus to be applied to the treadles of bicycles, tricycles, and other velocipedes, and to the treadles of sewing machines and other machines. Dated September 15, 1882.
- „ 4850. W. Teague, of Illogan, Cornwall, Engineer and Mine Manager, for improvements in apparatus for ventilating purposes. Dated October 12, 1882.
- No. 5062. S. Pitt—a communication from L. B. Miller and P. Diehl, of Elizabeth, New Jersey, United States, for improvements in sewing machines. Dated October 24, 1882.
- „ 5144. W. H. Moseley, of Derby, Engineer, for improvements in cocks or valves for controlling or regulating the flow of water, steam, gas or other fluids. Dated October 30, 1882.
- „ 3165. A. M. Clark—a communication from W. W. Goodwin, of Philadelphia, Pennsylvania, United States, for improvements in gas-cooking stoves or ranges. Dated October 30, 1882.
- „ 5197. W. R. Lake—a communication from J. Cooper, of Boston, Massachusetts, United States, for improvements in apparatus for flushing water-closets and for similar purposes. Dated October 31, 1882.
- „ 5235. P. A. Bayle, of 29, Rue de Chateaudun, Paris, for improved means for increasing the draught in chimnies, which means may be used to replace the steam injector now used on locomotive, portable and other engines, and for facilitating the withdrawal of air by ventilating shafts. Dated November 2, 1882.
- „ 5332. E. P. Chaimsonovitz, of Leytonstone, London, for improvements in the production of light and heat and apparatus therefor. Dated November 8, 1882.
- „ 5407. J. Wetter—a communication from J. Grant, of Boston, Massachusetts, United States, for improvements in filters. Dated November 13, 1882.

PATENTS WHICH HAVE BECOME VOID:—

- No. 4945. W. R. Lake—a communication from T. S. L. Howard, of the United States, for improved apparatus or mechanism for stitching or sewing button-holes. Dated December 3, 1879.
- „ 4956. W. White, of 30a, Wimpole-street, London, Architect, for improved mechanical arrangements to be applied to ball, float, and other valves, for facilitating the action thereof. Dated December 3, 1879.
- „ 4975. H. W. Pendred, Civil Engineer, of Ford Point, Lower Broughton, Salford, Lancashire, for improvements in safety-valves. Dated December 5, 1875.
- „ 4979. M. F. Rust—a communication from H. L. Judd, of New York, United States, for improvements in carpet sweepers. Dated December 5, 1879.
- „ 4995. J. Kroog, of Halle-on-the-Saale, Prussia, for an improved filtering apparatus. Dated December 5, 1879.
- „ 4999. H. Beresford, of Macclesfield, Cheshire, Cotton Spinner, for improvements in machinery or apparatus for cleaning and polishing boots and shoes. Dated December 6, 1879.
- „ 5018. G. Butler and R. Askie, Engineers, of Monnow-road, Bermondsey, London, for improvements in oil feeders. Dated December 8, 1879.
- „ 5028. C. E. Gibson, of Birmingham, for improvements in window fasteners. Dated December 9, 1879.
- „ 5032. C. Hargrave, of Leeds, Gentleman, for an improved method of preventing the explosion of boilers used for supplying hot water for baths and other household purposes. Dated December 9, 1879.
- „ 5094. E. C. Phillips, of Manchester, Mechanical Engineer, and E. Marshall, of Birmingham, Mechanical Engineer, for improvements in sewing machines. Dated December 12, 1879.

- No. 5123. B. L. Atwood, of Goswell-road, London, for an improved adjustable wrench or spanner. Dated December 15, 1879.
- „ 5145. T. Palmer and J. H. Palmer, (trading in co-partnership under the firm of Palmer and Son), of Aston-juxta-Birmingham, Engineers, for an improved bearing for bicycles and other carriages. Dated December 16, 1879.
- „ 5171. H. J. Allison—a communication from H. Monchain, of Bouchain, Nord, France, for improvements in taps or cocks. Dated December 17, 1879.
- „ 5177. J. Mackenzie, of the firm of Strode and Company, Engineers and Gas Fitters, of 48, Osnaburgh-street, Regent's-park, London, for improvements in apparatus for lighting gas by electricity. Dated December 17, 1879.
- „ 5180. W. Brierley—a communication from H. Lippold and A. Rautenberg, both of Hirschberg, Silesia, Germany, for improved adjustable hooks for supporting curtain rods, and for other like uses. Dated December 17, 1879.
- „ 5190. T. A. Weston, of Fleet-street, London, and of Stamford, Connecticut, United States, Mechanical Engineer, for improvements in and appertaining to screw drivers, part of the invention being also applicable to other tools. Dated December 18, 1879.
- „ 5198. J. C. Mewburn—a communication from J. E. Poinot, of Paris, for improvements in perambulators. Dated December 19, 1879.
- „ 5203. M. W. Montauban-van-Swyndregt, of Coleman-street, London, for improvements in incubators, part of such improvements being applicable to other purposes. Dated December 19, 1879.
- „ 5244. G. Singer, of Coventry, and W. Granger, of Birmingham, for improvements in bicycles and other velocipedes, parts of which are applicable to other purposes. Dated December 23, 1879.
- „ 5246. J. G. Wilson—a communication from B. Winkler, of Muskau, Prussia, for improvements in cork-screws or cork-extractors. Dated December 23, 1879.
- „ 5259. C. Adkins, of Birmingham, for improvements in window fasteners, applicable to other similar purposes. Dated December 24, 1879.
- „ 5276. A. M. Clark—a communication from S. B. Ellithorp, of Rochester, New York, United States, for improved mechanism for waxing the threads in sewing machines. Dated December 24, 1879.
- „ 5281. J. W. Sutton, of High Holborn, London, for improvements in machines for cutting or mincing meat, vegetables, and other like substances. Dated December 24, 1879.
- „ 5284. H. H. Lake—a communication from S. Sawyer, of Gardner, Massachusetts, United States, for improvements in bicycles and similar machines. Dated December 27, 1879.
- „ 5295. W. Brown, Manufacturer, and J. Derry, both of Birmingham, for improvements in tricycles and parts of bicycles and other velocipedes, and in wrenches for the same, which are applicable for other purposes. Dated December 27, 1879.
- „ 4. J. H. Wilson, of 5, Duncan-terrace, Islington, London, Agent, for an improved cot for children. Dated January 1, 1880.
- „ 7. E. Hutchinson, of 25, Berger-road, London, Boot Manufacturer, for a new or improved machine for cleaning and polishing table forks. Dated January 5, 1880.

- No. 39. C. Griffith—a communication from W. Humble, and W. Nicholson, of the colony of Victoria, Australia, for improved apparatus to be used in the washing of clothes and fabrics. Dated January, 5, 1880.
- „ 4194. D. Johnston, of Glasgow, Engineer, for new or improved dry closets. Dated December 3, 1875.
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- „ 4406. J. T. King, of Oxtou, Cheshire, for improvements in lock washers for screwed bolts and nuts. Dated December 20, 1875.
- „ 37. W. R. Lake—a communication from J. Folk, of Brooklyn, New York, United States, Gentleman, for improvements in sewing machines. Dated January 4, 1876.

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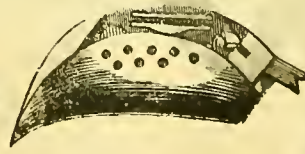
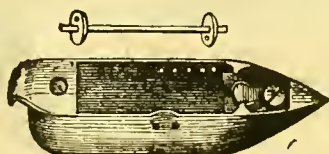
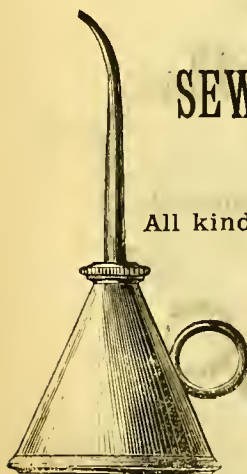
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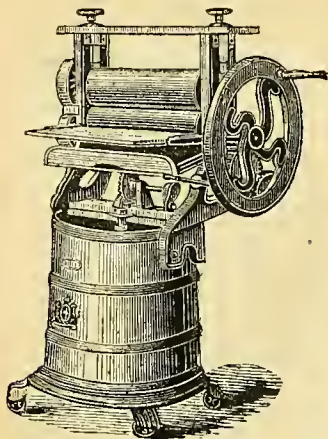


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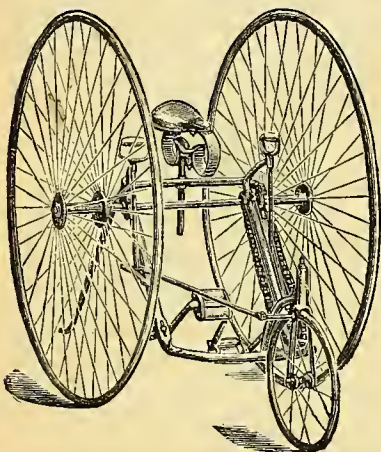
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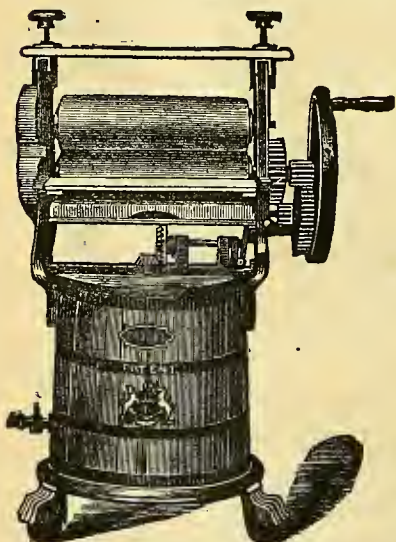
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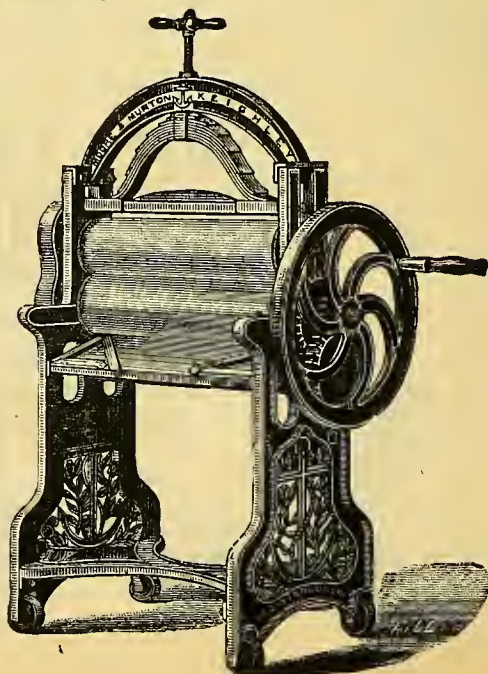
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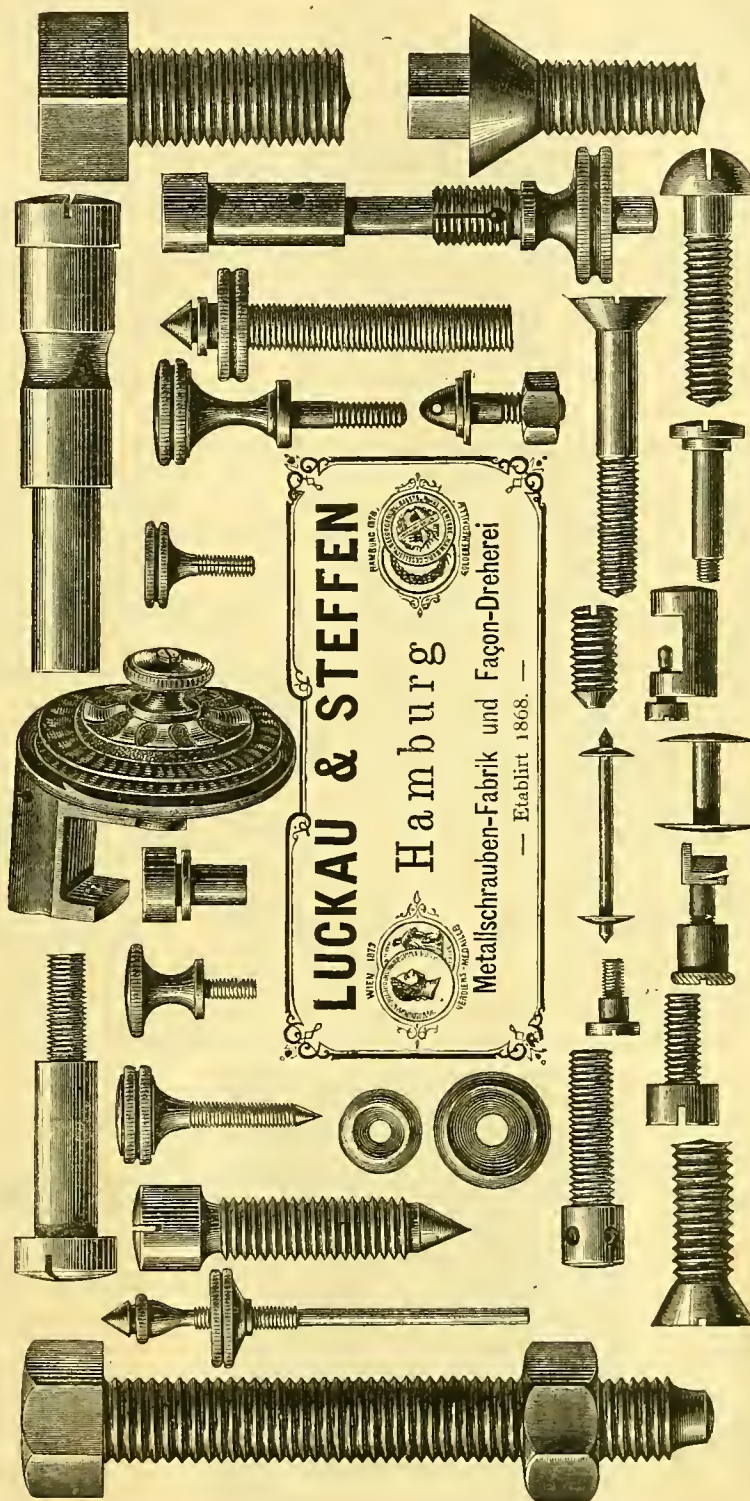
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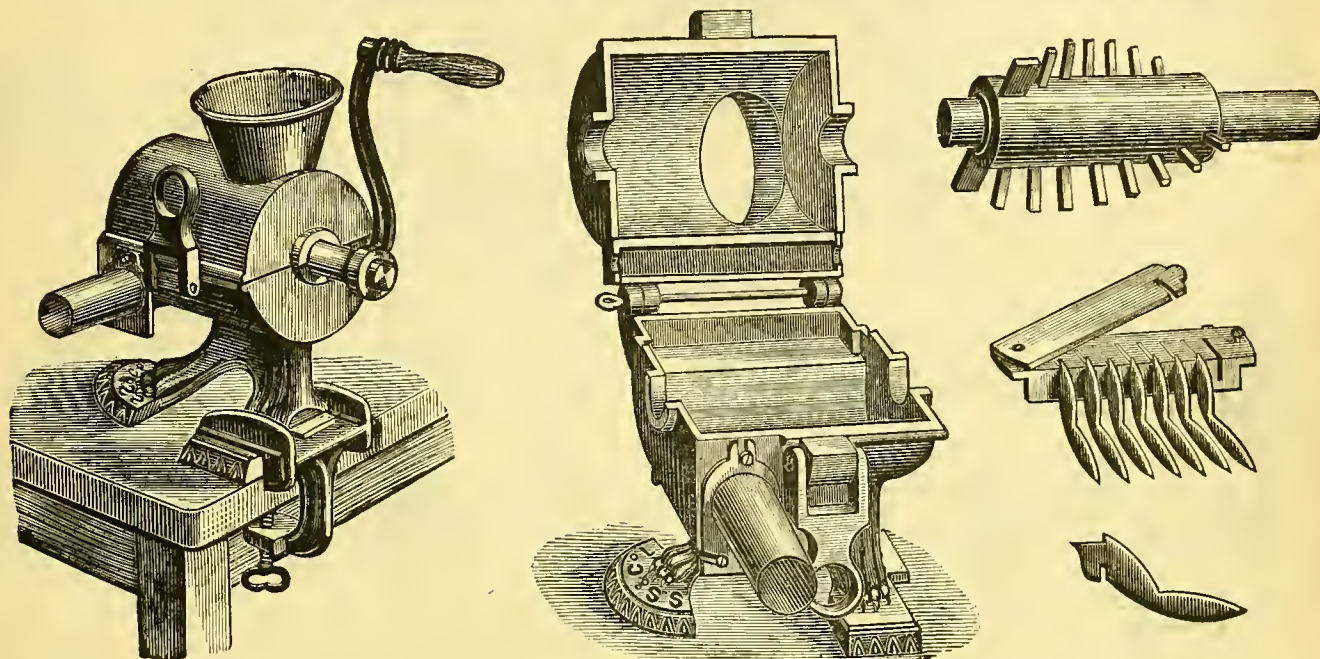
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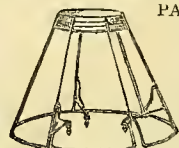


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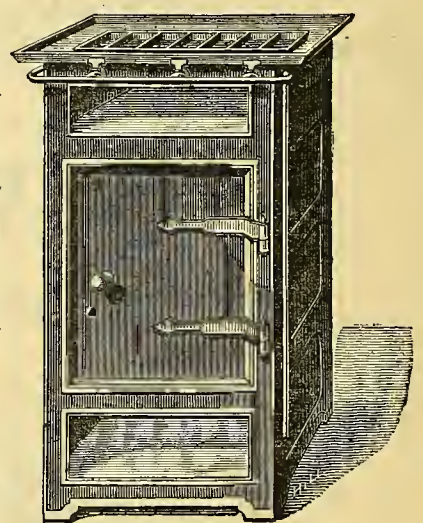
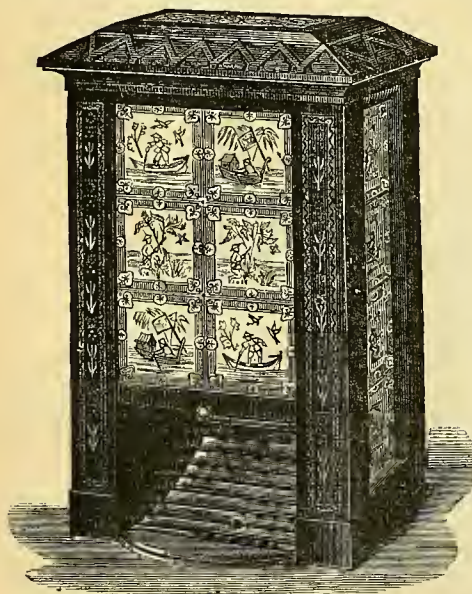
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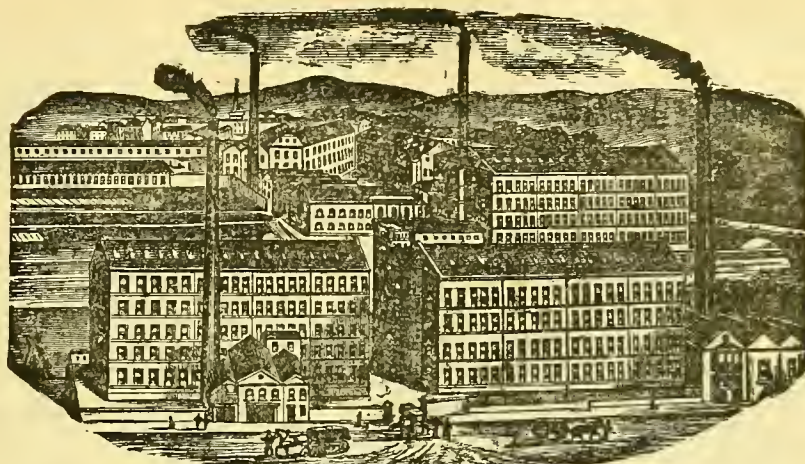
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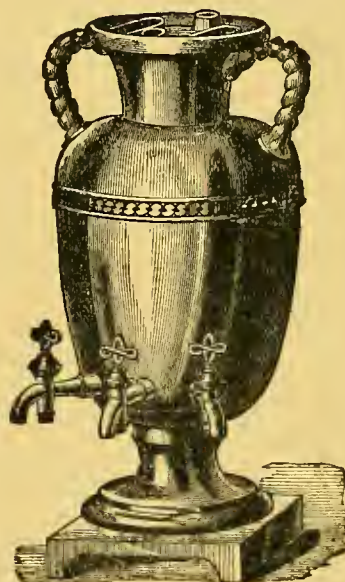
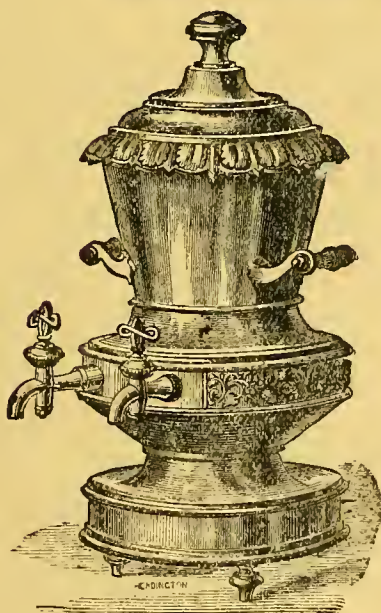
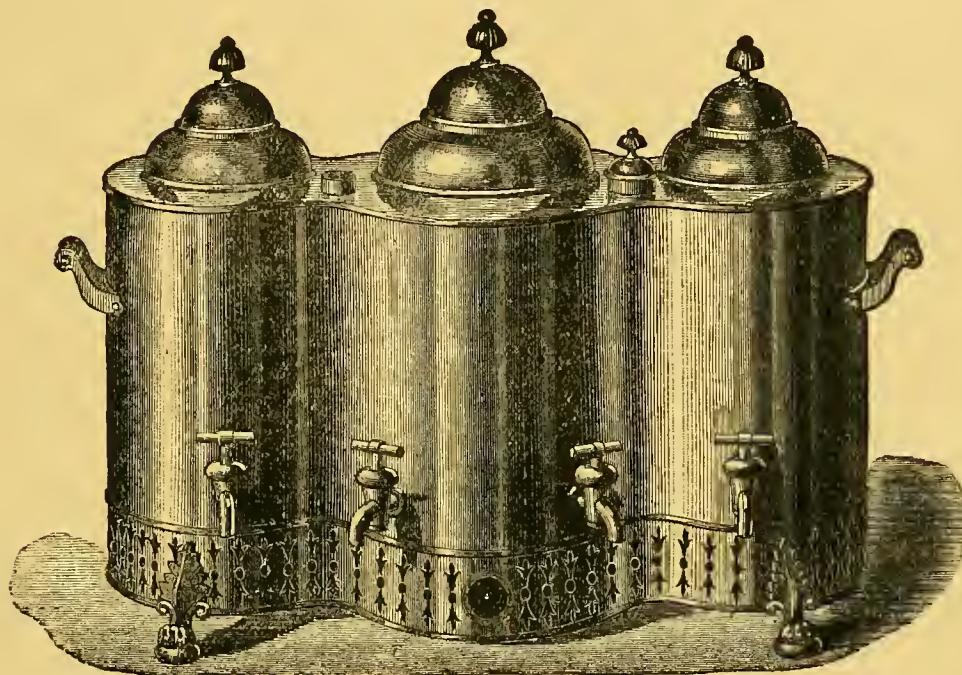
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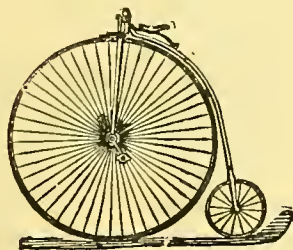


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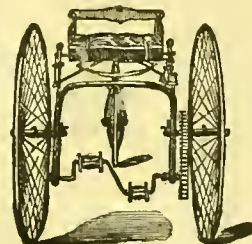
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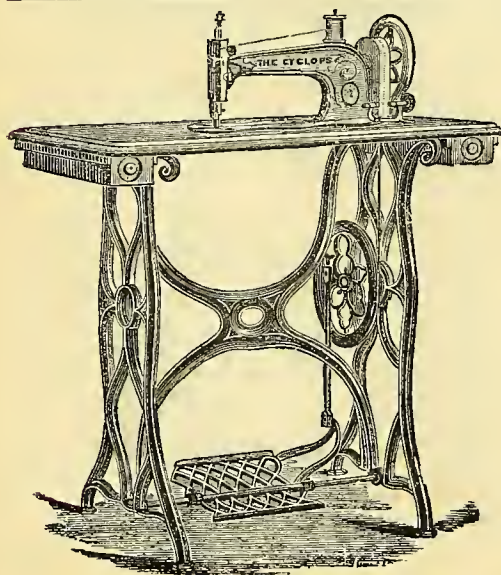
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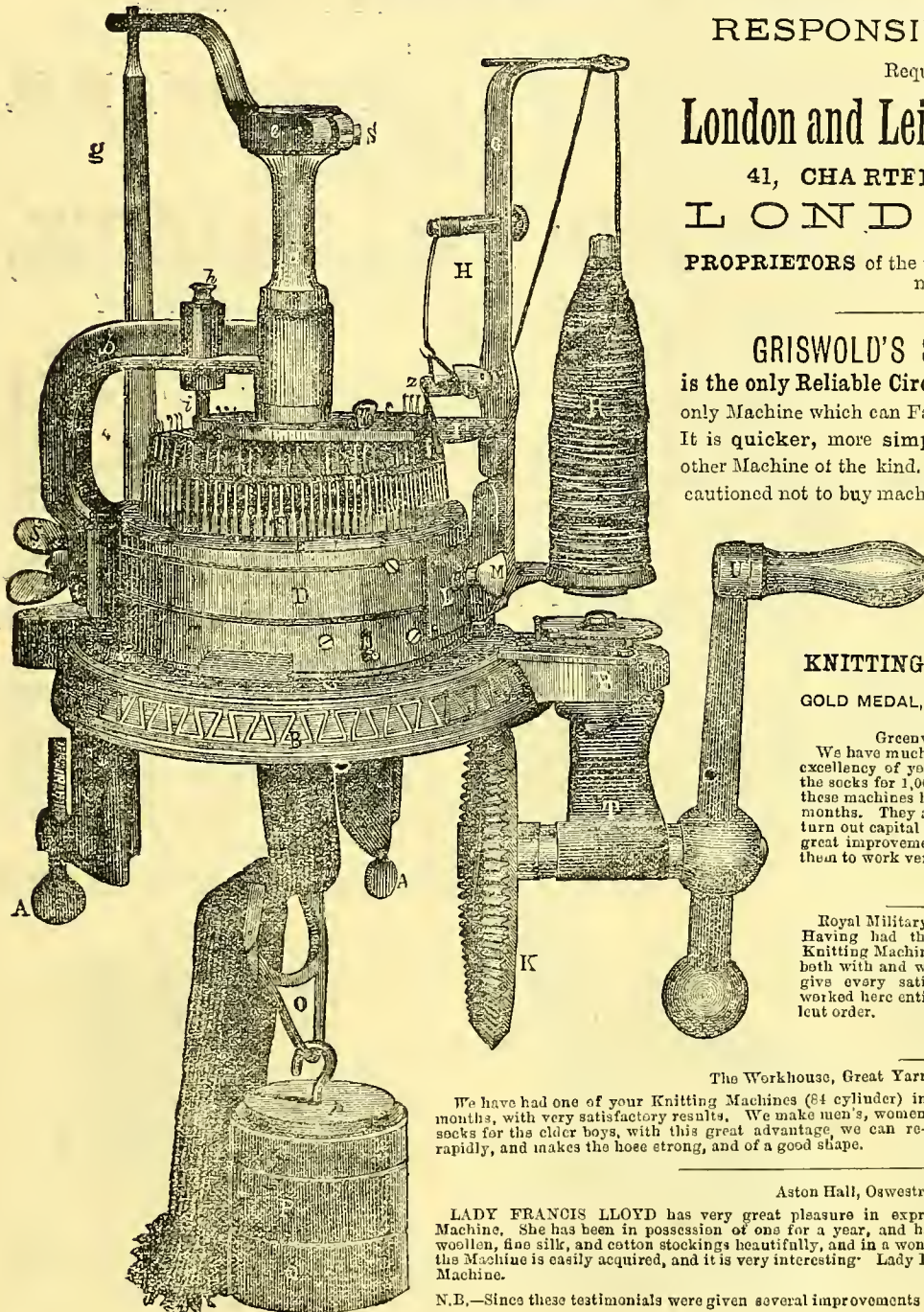
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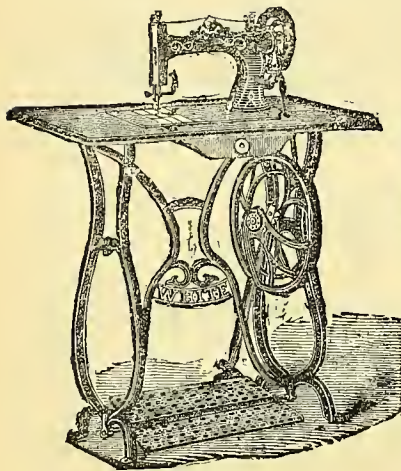
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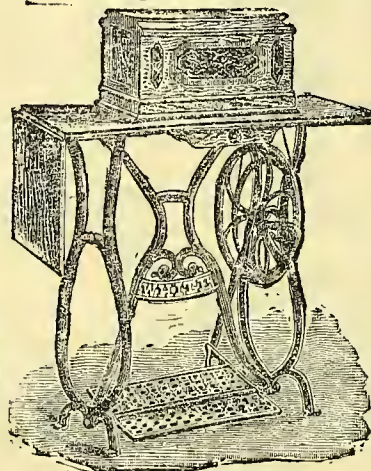
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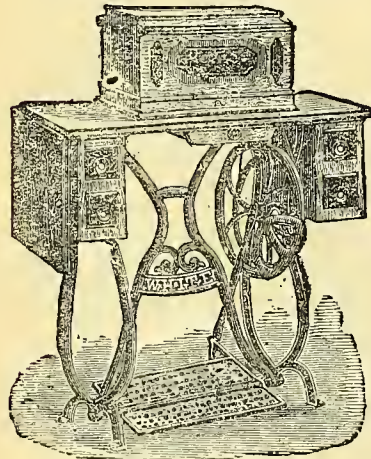
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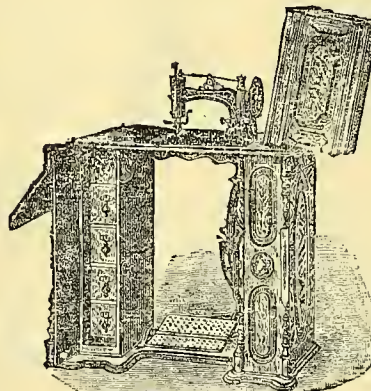
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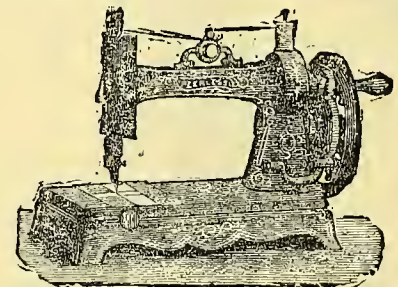
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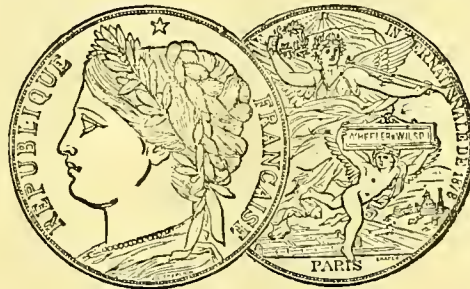
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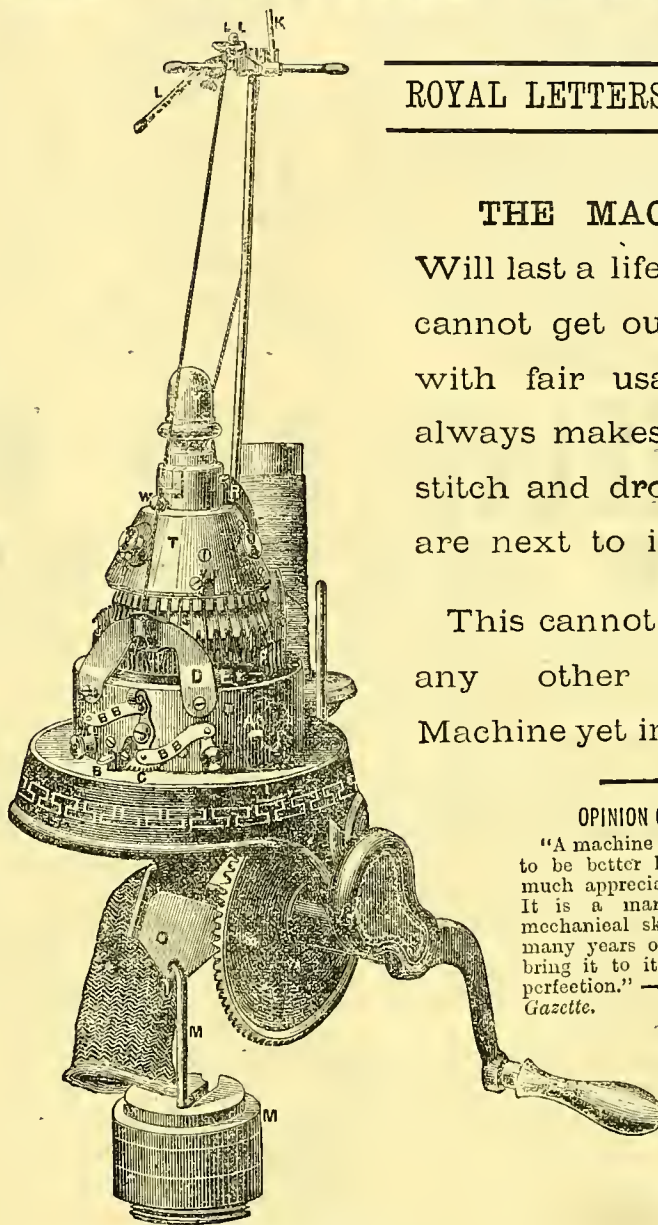
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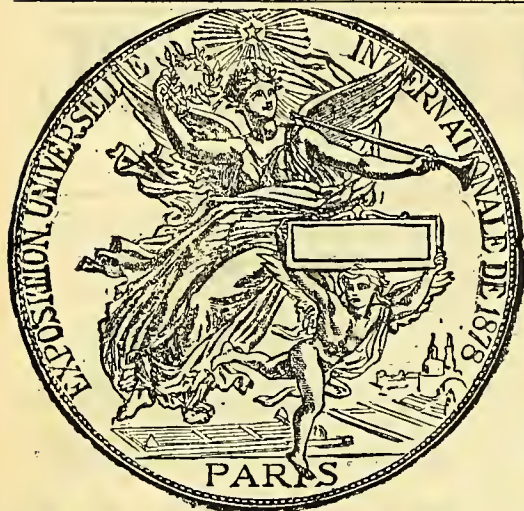
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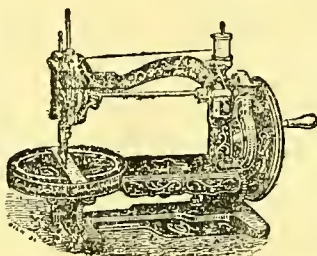


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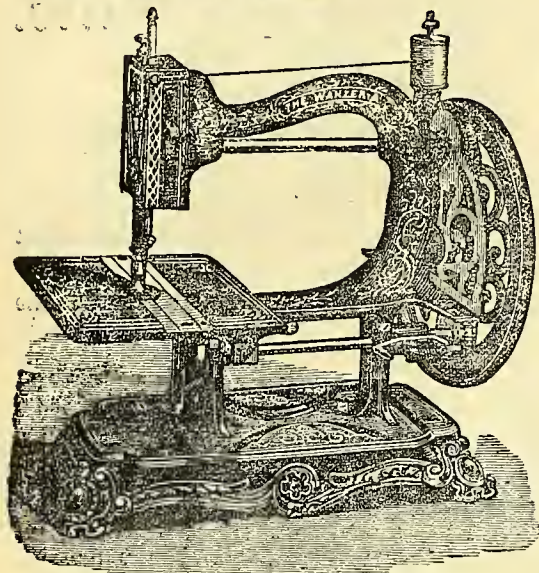
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WANZER PLAITING, KILTING AND BASTING MACHINES,

Over 200 varieties of perfect Plaiting or Kilting, from 30s. complete. *The only Machine Kilting and Basting at one operation.*

The Wanzer Sewing Machine Company,
LIMITED,

Chief Office—4, GREAT PORTLAND ST.,
OXFORD CIRCUS. LONDON. W.

AMERICAN B.H.O. & SEWING MACHINE Co., PHILADELPHIA,
MANUFACTURERS OF THE

AMERICAN BUTTON-HOLE MACHINE

AND

NEW AMERICAN SEWING MACHINES.

The trade is respectfully informed that the NEW No. 7 MACHINE is now ready for delivery.

SEND FOR ILLUSTRATED LISTS.

HEAD OFFICE, 8, Gallowtree Gate, LEICESTER.

GRISCOM'S Electro-Motor & 'Automatic' BATTERY.

Complete Apparatus for Driving any Sewing Machine,
Dental Lathe, &c., £6 5 0.

Packed and Delivered in London.

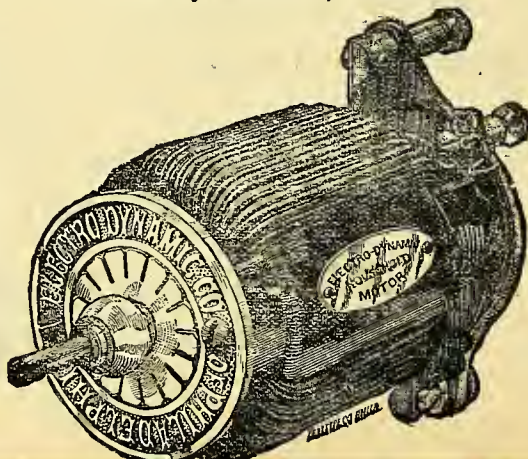
For Trade Terms, Patents, Agencies, &c., apply to

THE ELECTRO DYNAMIC CO.,

2, SCOTT'S YARD, BUSH LANE,

CANNON STREET, LONDON, E.C.

First Prize Medals Paris and Philadelphia, 1881,
and Crystal Palace, 1882.

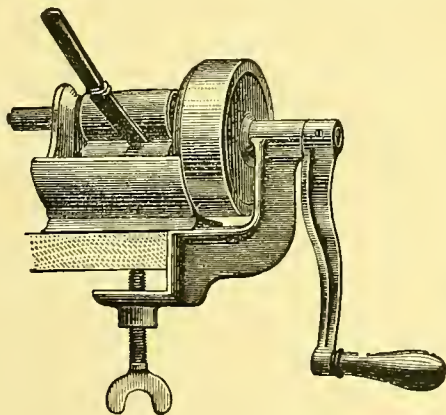


DOMESTIC MACHINERY.



Y reports that reach us we are able to state that most kinds of domestic machinery are in good demand. Washing machines are steadily enquired for, and the manufacturers of Keighley and the other towns in the North of England have no reason to grumble because of bad trade. Other domestic appliances, such as knife cleaners, carpet sweepers, boot cleaning machines, are experiencing a steady demand.

A manufacturer of domestic machinery, perhaps not so well known to the public as some, because the majority of his manufactures do not bear his name—is Mr. J. Holroyd, of Tomlinson Street, Hulme, Manchester. This gentleman has a very large factory, excellent plant, and turns out some really first-class work. A machine that he has just placed on the market is the Holroyd Knife Cleaner. The method adopted in this machine is the simplest of all known methods for knife cleaning. There are no screws to trouble the operator; the machine requires no adjustment; is always set ready for use, and it is almost impossible for it to get out of order. It is easy to work, and will clean knives quicker, and give a more brilliant polish than any other process. Sixty knives can easily be cleaned in 30 minutes, and a little boy or girl

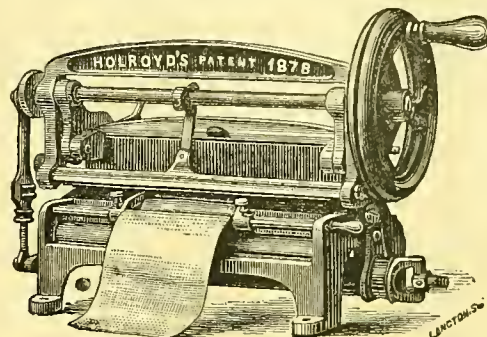


THE "HOLROYD" KNIFE-CLEANER.

can use the machine without difficulty. We have examined the machine before us and find that it is carefully made, well finished, and the materials used are superior to those of many a dearer machine. It will clean any size of knife, and by this process the knives are kept sharp, lasting much longer than if cleaned in the ordinary way.

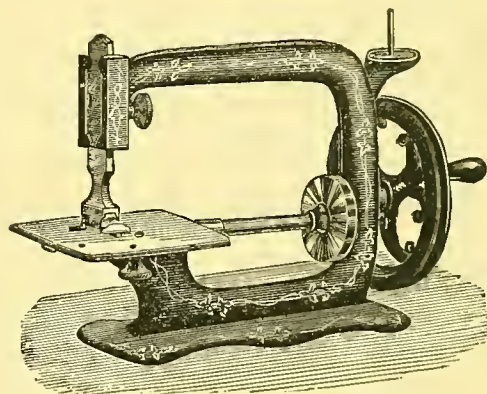
The Holroyd Kilter is a machine so well known that it scarce needs mention here. We understand that Mr. Holroyd has made altogether upwards of 10,000 of these machines, and their sale abroad in countries where the fashion of kiltering is *de rigueur*, is very large indeed. It is

said that the sewing machine has even outreached the domains of civilization, and that one was even sold by an enterprising Yanky to a Red Indian Chief, who, hailing it with delight, kicked out of his wigwam his faithful spouse,



THE "HOLROYD" KILTER.

remarking "squaw no use now, want squaw no more." We cannot claim such world-wide popularity for the Holroyd Kilter, a plentiful supply of paint and a few feathers being more to the tastes of the lady of the Indian Wigwam than kilted flouncers.



THE "HEBERLING" MACHINE.

Nearly all of the well-known Heberling Running Stitch Machines have been made for the Heberling Company by Mr. Holroyd, and we think that the finish and general excellence of workmanship of these machines speak much of the care and attention which Mr. Holroyd gives to his productions. As much might be said in reference to the Wiseman Hand Stitch Straw Hat Machine, which is really a fine piece of mechanism, selling at 25 guineas. Firms desiring to have domestic and other machines made in quantities will find that Mr. Holroyd has every facility for their manufacture.

THE NEW WILSON FACTORY.

The new factory of the Wilson Sewing Machine Company at Wallingford, Conn., is progressing rapidly towards completion. The brick walls are now up three stories, and the additional story will soon be up. When finished the factory building will be four stories high, 400 by 85 feet, with an L 85 feet wide and 100 feet long.

HINTS TO REPAIRERS.

BY COGWHEEL.

THE THREAD HAVING A FLOSSY APPEARANCE.

EXAMINE the points from the spool to the tension, and from the tension to the needle, and see that they are smooth, and offer no sharp grating edges to the thread. If, after you have sewn a foot or so, at a high speed, and the thread has a flossy appearance at and near the needle when the needle-bar is at its highest point, then it is caused by the thread coming in contact with the looper, taker, or a needle too fine for the thread, or some grating edge below the throat plate.

The best plan to find the cause is to ink the thread near the spool and keep an eye on the ink spot until it reaches the loop taker, by this means you will see just where it begins to floss.

LOOPS GATHERING.

If the tension of the upper thread is correct, and still the stitch loops, it is caused by the needle being too fine for the thread. The general cause is from the thread feeding off the tension too freely.

Care should be taken not to have the upper tension too loose, as a fringed or rough seam will be the result; but if too tight the thread is apt to break. In ordinary sewing, the upper tension should be kept tight, but not to the extreme.

When very coarse or linen thread is to be used, set the needle one-sixteenth of an inch lower than for ordinary sewing.

Needles are broken and bent by pulling the goods, by using thread too large for the needle, by the presser-foot being out of position, and by the needle striking the shuttle or hook, as the case may be.

The size of the needle, the length of the stitch, and the degree of force used in tightening it on the material, whether it be thick or thin, coarse or fine, are essential points to watch over.

Remember that thin, soft silk or muslin, if sewed with a large needle, with too long or too tight a stitch, will be badly drawn and puckered. On the contrary, to sew any coarse, thin material, such as ticking, cloth, or woollen goods, the stitch must be long and tight, as the goods require.

Remember, too loose a tension will cause rough seams and loops.

The size of the needle should conform to the thread, and both be suitable to the material sewed. Use a needle that will permit the thread to pass freely through the eye.

An old sewing machine manager of twenty-five years' experience claims that all sewing machine teachers would be better qualified for their duties if they would devote a little time to learning how to adjust a machine as well as to operate it. He says if any difficulty occurs which they cannot immediately master, they are apt to fall into the notion that the machine is "out of order." It is a fact well known to adjusters and repairers that the owners of machines sometimes fall into the same notion. When a lady gives way to the idea that her machine is out of order, an attempt to rectify the difficulty is sure to be made, either by herself or by some very knowing "friend of the family," who volunteers to alter it "so as to make it sew." Here is another great mistake. A person who is not known beforehand to be an experienced operator on machines should never be allowed to touch one with a view to making any changes in it. What would you think of a

man who had never struck a note on a piano in his life who should propose to *alter your piano* so that a mere beginner of a few days' or weeks' experience could perform elegantly on it? You would set him down as crazy, and yet he would act no more like a crazy man than he who undertakes to alter a sewing machine so that a mere beginner shall be immediately transformed into a competent operator. An imperfect knowledge on *your* part cannot be remedied by any change that can be made in the *machine*.

(To be continued.)

ANNUAL MEETING OF THE HOWE MACHINE CO

AT the Annual Meeting of the Shareholders of the Howe Machine Company, Limited, held in London on February 2nd, the two retiring Directors, Mr. N. P. Stockwell and Mr. Edgar Palmer, were unanimously re-elected amid many expressions of confidence in the management.

At a subsequent meeting of the Directors Mr. Stockwell was again elected Managing Director, an office he has filled since 1874, when the Company was formed.

At the Shareholders' Meeting samples of the new machine which the Company intended to place upon the market were exhibited, and reference was made to the Bicycle and Tricycle Exhibitions then being held in London, as to the great success the Company had made in the manufacture of bicycles and tricycles, their make of these articles being now in the foremost rank.

ADHESIVE POWER OF NAILS AND SCREWS.

THE ordinary nail plays a by no means insignificant part in construction, and the following records of experiments to discover the holding power of nails are of interest: Haupt in his "Military Bridges," gives a table of the holding power of wrought iron tenpenny nails, 77 to the pound, about 3in. long. The nails were driven through a 1in. board into a block, from which it was dragged in a direction perpendicular to length of nails. Taking a pine plank nailed to a pine block, with eight nails to the square foot, the average breaking weight per nail was found to be 380lb.; in oak the power was 415lb.; with 12 nails per square foot, the holding power was 542.5lbs.; and with six nails in pine 463.5lbs. The highest result obtained for 12 nails per square foot in pine, the breaking weight being 612lbs. per nail. The average strength decreased with the increase of surface. In Tredgold (Bevan's experiments) the force in pounds required to extract threepenny brads from dry Christiania deal, at right angles to grain of wood, was 58lbs.; the force required to draw a wrought iron sixpenny nail was 187lbs., the length forced into the wood being 1.00in. The relative adhesion, when driven transversely and longitudinally, is in deal about 2 to 1. To extract a common sixpenny nail from a depth of 1in., in dry beech, across grain, required 167lbs., in dry Christiania deal, across grain, 187lbs., and with grain, 87lbs.; in elm, the required force was 327lbs. across grain; and 257lbs. with grain, and in oak, 507lbs. across grain. From Lieutenant Fraser's experiments, it would appear that the holding power of spike nails in fir is 460lbs to 730lbs. per in. in length; while the adhesive power of screws 2in. long and 22.100 diameter, at exterior of threads 12, to the inch, driven into ½ inch board, was 790lbs. in hardwood, and about half that amount in soft wood.

CLEANING BRONZE STATUARY OR OTHER BRONZE ORNAMENTS.—Where the ordinary process of dusting is not sufficient to remove the dust which causes such ornaments to assume a gray, dingy appearance, weak soap-suds or aqua ammonia will be found useful for cleaning such bronzes.

EXPORTS AND IMPORTS OF SEWING MACHINES

During February, 1883.

EXPORTS FROM LONDON.

Hambro ..	..	..	17	Sewing Machines
Jamaica ..	..	..	24	do.
Mossel Bay ..	..	..	24	do.
Natal ..	..	..	10	do.
Sydney ..	..	..	£272	do.
Melbourne ..	..	..	8	do.
Sydney ..	..	..	16	do.
Varna ..	..	..	18	do.
New York ..	..	..	13	do.
Tienstin ..	..	..	3	do.

FROM LIVERPOOL.

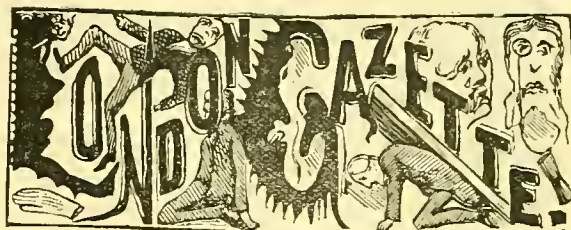
Para ..	..	..	4	Cases.
Algoa Bay ..	..	..	15	Packages.
Beyrout ..	..	..	50	Cases.
Bordeaux ..	..	..	1	do.
Constantinople ..	..	..	75	Packages.
Lagos ..	..	..	1	Case.
Tunis ..	..	..	15	Cases.
Varna ..	..	..	24	Packages.
Alexandria ..	..	..	1	Case.
Bombay ..	..	..	4	Cases.
Canada ..	..	..	1	Case.
Catania ..	..	..	2	Cases.
Iquique ..	..	..	6	do.
Malaga ..	..	..	18	do.
Malta ..	..	..	7	do.
Melbourne ..	..	..	76	do.
Monte Video ..	..	..	85	do.
Pelotas ..	..	..	38	do.
Rio de Janeiro ..	..	..	362	do.
Santander ..	..	..	57	do.
Baltimore ..	..	..	15	do.
Buenos Ayres ..	..	..	83	do.
Corunna ..	..	..	12	do.
Havana ..	..	..	6	Packages.
Smyrna ..	..	..	2	do.

IMPORTS INTO LONDON.

Rennick, Kemsley & Co. ..	..	..	£250
E. H. Rolfe ..	..	..	£7,147
Singer Manufacturing Co. ..	..	..	£1,152
Rasenberg, Loewe & Co. ..	..	..	£1,881
T. Harnett ..	..	..	£45
East and West India Dock Co. ..	..	..	£216
Gordon & Gotch ..	..	..	£503
H. Loog ..	..	..	£898
White Sewing Machine Co. ..	..	..	£645

INTO LIVERPOOL.

Lampport & Holt ..	..	..	£60. 12 Cases
Musson & Co. ..	..	..	£7
Du Temple & Co. ..	..	..	£5
Rathbone Brothers & Co. ..	..	..	6 Cases
Sataveley & Co. ..	..	..	£88
W. Carden & Co. ..	..	..	£108
R. Balman & Co. ..	..	..	£25
R. Steinman & Co. ..	..	..	£35
Richardson, Spencer & Co. ..	..	..	£40



PARTNERSHIPS DISSOLVED.

Benjamin Gibbons and Sons, Nail Manufacturers, Manchester.
 Davis, W. H., and Co., Metallic Bedstead, Manufacturers, Birmingham.
 Ulph and Gibbons, Hardware Merchants and Factors, Manchester.
 Clark and Thorn, Braziers, High-street and Denmark-place, Bloomsbury.
 Sewerbutts Brothers, Ironmongers, Clitheroe.
 Cox, Luckman and Co., Plane and Fire-iron Manufacturers, Birmingham.
 Ambler and Dickenson, Machine Tool Makers, Keighley.
 Dawes, H. and J., Ironmongers, Manchester and Salford.
 Wilson and Wilson, Wood Cutting Machine Makers, Leeds.

LIQUIDATIONS BY ARRANGEMENT.

Kelly, A., Lamp Manufacturer and Agent, Mark-lane and Epping, and Grosvenor-road Railway-station-yard. January 15, at Monkhouse and Goddard's, Accountants, 29, St. Swithin's-lane. February 7, at 2 o'clock, Burn and Berridge, Solicitors, 10, Pancras-lane, Bucklersbury.
 Tyrer, P., Brassfounder, High-street, Prescott. January 18, at H. Cross's, Solicitor, Prescott, February 8, at 12.
 Carter, C., trading as C. Carter and Co., Brassfounder, Buckingham-street, Liverpool. January 23, Jones and Kitchingman, Solicitors, Harrington-street, Liverpool.
 Lee, S., Ironmonger, Ilkeston-road, and Derby-road, Nottingham. January 22, W. H. Stevenson, Solicitor, Nottingham.
 Wakefield, B., Hardware Merchant and Factor, Hamstead-road, Handsworth, trading as Wakefield and Co., at Edgbaston-street, Birmingham. January 23, Reece, Harris and Harris, Solicitors, New-street, Birmingham.
 Asten, Thomas, Brassfounder, Cophall-street, Newtown, West Bromwich. January 29, W. T. Travis, Solicitor, Tipton.
 Eastwood, Ironmongers, Hyde-park-corner, Leeds. January 29, J. Ryder, Solicitor, Leeds.
 Penty, E., Plated Goods Manufacturer, New Briggate, Leeds. January 29, W. Wells, Solicitor, Leeds.
 Pickett, I. Ironmonger, 14, St. George's-terrace, Kilburn, and 32, Kingsgate-road, Brondesbury. January 30, at Inns of Court Hotel, Holborn, February 20, at 12, T. Gratis, Solicitor, Wolverhampton.
 Simmonds, J., jun., Manufacturer of Tinned and Japanned Goods, New Hampton-road, Wolverhampton. January 31, H. and J. E. Underhill and Lawrence, Solicitors, Wolverhampton.
 Dobbins, J., Ironmonger and Gasfitter, Shaftesbury-terrace, Richmond, at Paul and Eldridge's, Solicitors, 11, Staple-inn, February 26, at 1.
 Sars, F., Ironmonger, Bedford-street, Reive-street, and Frankfort-lane, all Plymouth. February 5, Stanbury and Phillips, Solicitors, Plymouth.

BILLS OF SALE.

Reeves, H., jun., Sewing Machine Dealer, 49, Russell-street, Hull, for £35, to H. Reeves, sen. Filed January 15.
 Archer, E., Manufacturer of Domestic Machinery, &c., 23, Brownwood-road, and 9, Essex-road, for £60, to E. Hewitt. Filed February 8.



THE WHEELER AND WILSON MANUFACTURING COMPANY have been obliged, owing to an increase of business, to remove their Cardiff branch from St. Mary-street, to 19, Duke-street.

THE Vulcan Tube Works, West Bromwich, have been taken by Messrs. Bridge Brothers, from March 25th next, for the manufacture of wrought iron tubes and fittings for gas, steam, and water, plain or galvanised, and hydraulic tubes and fittings.

MR. T. J. VAREY continues the business of brassfounder, formerly carried on under the title of T. J. Varey and Co., at Sands Side, Scarborough.

IN consequence of the death of Mr. Thomas Green, ironmonger, of Whittlesea, a valuation for probate has been made of stock by Mr. J. B. Ulph, of St. Ives. Mr. William Green, son of the late Mr. Thomas Green, succeeds to the business.

MESSRS. HORN AND BEACH, ironmongers, have removed from 227 to 204, High-street, Watford.

MESSRS. LANCASTER AND TONGE, brassfounders, Withington-street, Pendleton, have removed to their new premises in the same street.

MESSRS. PIPER AND THEOBALD, wholesale ironmongers, Norwich, have taken into partnership Mr. Alfred Johnson, and Mr. George J. Burton, both of whom have long been connected with the firm.

THE business of Mrs. Matilda Toleman (trading as A. and E. Toleman, general and furnishing ironmongers, of Beaminster, Dorset), has been disposed of to her two sons, Messrs. Charles and Robert Toleman, who will carry on the business in all its branches in the same name as heretofore. A valuation of the stock between the parties was made by Mr. J. Munk, of Exeter.

THE partnership heretofore subsisting between Messrs. Henry Dawes and James Dawes, as furnishing ironmongers, at 131, and 133, London-road, Manchester, and 217, Chapel-street, Salford, under the style of H. and J. Dawes, has been dissolved by mutual consent as and from the 31st of December last. The business at 131 and 133, London-road, will, as from that date, be carried on by Mr. James Dawes alone, to whom and by whom the debts of the said firm are to be paid, and the business at 217, Chapel-street, will, as from that date be carried on by Mr. Henry Dawes alone, and in his own name, and all debts owing to the said firm at that address will be received by him.

JOSEPH ROGERS AND SONS (LIMITED).—The annual meeting of Joseph Rogers and Sons, Limited, was held on the 14th ult., in the Board-room, No. 6, Norfolk-street, Sheffield, Mr. Robert Newbold, chairman of the board of directors, presiding. The report was adopted, and the usual dividend was declared. The retiring director (Mr. Joseph Rodgers) was re-elected, and the recommendation of the directors that the vacancy caused by the death of Mr. Joseph Nelstrop should not be filled, was adopted. Mr. Thomas Hadfield, the auditor, was re-appointed.

FOSTER'S CHEMICAL FIRE-ENGINE COMPANY has been formed to manufacture and sell Foster's chemical fire-engines, and to do all things incidental thereto. The capital is £100,000, in 19,500 preference shares of £5 each, and 2,500 deferred shares of £1. The signatories, who have taken one share each, are: E. T. Tilsley, 37, Percy-street, W.C.; E. Leworthy, Herne-hill; C. W. Kirk, 148, St. Paul's-road, Camden-square; J. W. Fricker, Croydon; H. Fleet, Hackney; P. Cremieu-Javal, 59, Bryanstone-street; J. Kingdon, Forest-hill. Directors: Rear-Admiral F. W. P. Bouverie, Lieutenant-Colonel W. H. Moffatt, and W. Blakely. The remuneration is: Chairman, £200; other directors, £100; and one-tenth of the profit after the payment of of a 10 per cent. dividend on the preference shares. The qualification is the holding of 20 shares.

L A W.

MARYLEBONE.

SEWING MACHINE CASE.—Messrs. Jones and Co., sewing-machine makers, of 65, High-street, Camden Town, were summoned for detaining a sewing-machine, alleged to be the property of Miss Emily Whiting, residing at 34, Frederick-street, Gray's-inn-road. The complainant said she purchased a sewing-machine in the April of last year for £4 of a Mrs. Leete, of Wild-street, Drury-lane, who was acting for someone else. In November the machine required repairing and it was sent to the makers (the defendants) for them to do what was necessary to it. From that time she had been unable to regain possession of it.—Mr. Cooke said the machine could not be the property of the defendants if it was out on hire, to which Mr. Pain, who appeared for the defendants, said the machine was let out on hire on certain conditions. The parties had to pay 10s. down and 2s. 6d. a week, and until the whole was paid the property still belonged to the defendants.—Mr. Cooke said there could be no doubt that under such circumstances it was a larceny for the person to part with the machine before the value of it had been paid; and if that was so in this case, and the complainant had bought the machine privately, she had no claim on it.—Mr. Pain asked for costs, but Mr. Cooke declined to accede to the application, remarking that he thought the complainant had been duped by some one. It should also be remembered that the defendants were running some risk in offering their machines to poor people upon such tempting terms.—The summons was dismissed. [February 7th.]

WHEELER & WILSON v. JAMES McCORRY.—This case was heard at the last sessions, and judgment was held over until January 23rd, when Mr. R. W. Gamble, Q.C., County Court Judge for Armagh and Louth, delivered his decision at Armagh. His Worship, in delivering judgment, said the plaintiffs in the case sought damages from the defendant for his having wrongfully taken a sewing machine, their property. The defendant on the 19th September, 1882, had bought the machine for £2 10s. from William Stringer, to whom the plaintiffs had hired it. The terms of the hiring were distinctly set out in an agreement of April 30th, 1881, made between the plaintiffs and Stringer. The clear construction of this agreement was that Wheeler & Wilson were to remain owners of the property in this machine, with power to Stringer to purchase it upon certain conditions. Stringer, therefore, had no right to dispose the machine, and the taking of the plaintiffs' goods by assignment for another who had no right to dispose of them was conversion. The special agreement with Stringer took the case out of the ordinary class of cases when goods were sold upon credit, and when the vendors, notwithstanding the credit, would have a right to the immediate possession. The rule as to the ownership of the property depended upon the intention of the parties, and in this case the agreement with Stringer made it very clear that it was intended that the property should not pass to Stringer until he had paid all the monthly payments for the hiring up to £9, and then paid another shilling for the purchase. Stringer, therefore, had no power to sell the property, and the defendant was liable in damages for buying it. He would give £4 damages.

PRELIMINARY NOTICE.]

NASCH'S PATENT BUTTON-HOLE ATTACHMENT

AND

MANUFACTURING COMPANY, LIMITED.

INCORPORATED UNDER THE COMPANIES ACTS 1862 to 1880,
Limiting the liability of each Shareholder to the amount of his Shares.

CAPITAL, £15,000, DIVIDED INTO 15,000 SHARES OF £1 EACH.

Issue of 7,500 Shares, of which the Directors and their Friends will take 2,000 Shares.

Payable 1s. per Share on Application, 14s. per Share on Allotment, and the balance of 5s. per Share one Month after Allotment,
MAKING NO FURTHER LIABILITY.

DIRECTORS.

ROBERT F. HARROP, Esq., Cotton Spinner, Egerton Street, Oldham, *Director of Bradbury & Co., Limited, Sewing Machine Manufacturers, Oldham.*

GEORGE J. CUDDON, Esq., Newcastle, Staffordshire, and 90, Maida Vale, London, W., *Director of the Cheshire Banking Company, Limited.*

WILLIAM H. BARLOW, Esq., Wellington House, Waterloo, Oldham.

Councillor JOHN COLLINGE, Walshaw House, Oldham.

HENRY E. HARRIS, Esq., Finsbury Pavement, London, E.C.

OFFICES.

14, ST. ANN'S SQUARE, MANCHESTER.

| 4, BROAD STREET BUILDINGS, LONDON, E.C.

THIS Company has been formed to purchase the Patent Rights of Mr. ISIDOR NASCH's Button-Hole Attachment for Sewing Machines in Great Britain, Ireland, France, Belgium, Germany, Austria, Hungary, and all Countries, including the United States of America and Canadas.

The purchase secures the valuable Patents of Mr. ISIDOR NASCH, whose name in the Sewing Machine World as a practical Sewing Machinist stands pre-eminent.

The following are the advantages of this Patent :—

1. That the Attachment can be made for a small cost.
2. That it can be applied to any existing Sewing Machine, hand or Treadle.
3. The rapidity with which the Button-Holes can be made, viz., from 50 to 60 per hour.
4. It is especially adapted for over-seaming and embroidery.
5. Applicable, on account of its simplicity and cheapness, to trades of all description ; also to the public generally.
6. In many cases it can be employed where hand-sewing is now exclusively used.

The manufacture of Sewing Machines has been one of the greatest industries of modern times, and the fortunes that have been made by Patentees of certain useful articles and attachments in connection therewith, is fabulous ; but previous to this invention, no attachment for the manufacture of Button-Holes has been invented which can be applied to an ordinary Sewing Machine in so effective a manner as this invention.

Instantly this accessory is attached to a Sewing Machine, it becomes a Button-Hole Machine at pleasure, by the simple method of moving a small lever ; thus, a person using the Machine for sewing a coat, boot, shirt, or any other article, can *instantaneously* turn his Machine into a Button-Hole Machine, or *vice versa*.

One of the greatest features is the fact of its being applicable to any make of machine, thereby creating a monopoly of the article itself, and yet being an incalculable advantage to Manufacturers, and everybody who has, or intends to have, a Sewing Machine.

The Patent Rights have been settled by THEODORE ASTON, Esq., Q.C., whose authority on the validity of Patents is well known.

This Attachment can be seen at the London Offices of the Company, 4, Broad Street Buildings, E.C., in full operation, on a "White" Machine, a "Singer" Machine, and a "Bradbury & Co.'s Rotary Shuttle."

THE VERTICAL FEED SEWING MACHINE.

Beyond dispute the only really Perfect Machine yet produced.

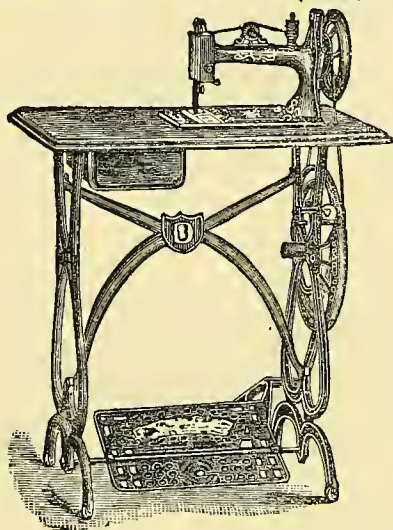
AWARDED THE
ONLY GOLD MEDALS

AT THE

SYDNEY & MELBOURNE

EXHIBITIONS,

In Competition with all the leading Machines.

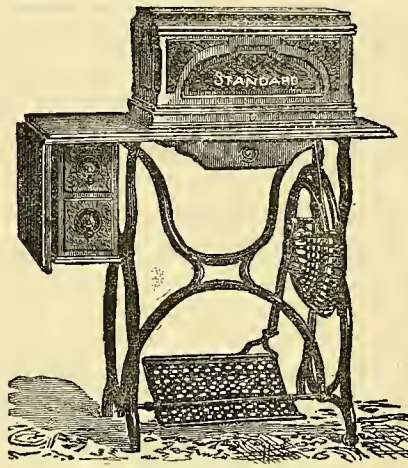


This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking, and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity, and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the Work and every information, may be obtained at the Offices of the Company,

52, QUEEN VICTORIA STREET, E.C.
SOLE ADDRESS IN LONDON.

THE
**LIGHT-RUNNING
STANDARD**
Has No Equal.



**NONE SO SIMPLE,
NONE SO DURABLE,
NONE SO RELIABLE.**

Examine it Before Purchasing any other.

**RENNICK, KEMSLEY & CO.,
4 FINSBURY CIRCUS, LONDON,**

ALSO,

Melbourne and Sydney.

A GOOD OPENING for an energetic young man with some capital, in the sewing machine and bicycle trade, as partner or otherwise. Address—X.Y.Z., Office of this Paper.

SEWING MACHINE TRAVELLER WANTED.

MUST be used to the trade and have first class references. One with Continental experience preferred. State former situations held and terms required, to Machines, care of E. FISHER and Co., 50, LOMBARD STREET LONDON.

OFFICIAL NOTICE.—CORK EXHIBITION, 1883.—It is intended to hold an EXHIBITION OF MANUFACTURES, ARTS, PRODUCTS, and INDUSTRIES in the CITY OF CORK, and to open it in the first week of July. It will remain open for from two to three months. Applications for space should be sent addressed to L. A. BEAMISH, Hon. Secretary, Exhibition Buildings, Cork, before 1st of March, but FINE ART applications will be received until March 15th.

Forms of Application for space may be obtained from the Hon. SECRETARY, at the above address, who will also gladly receive and acknowledge donations to the EXHIBITION FUNDS.

JOURNAL OF DOMESTIC APPLIANCES

AND

Sewing Machine Gazette.

WHEN Elias Howe—watching the weary fingers of his wife, as stitch by stitch she sewed the family garments—conceived the idea of inventing the sewing machine, his thoughts were only of a simple piece of

mechanism which would lighten the work his wife had to do, namely, plain household sewing. It was reserved for other inventors to improve on his idea and produce the many variations and complications of stitch and adapt the sewing machine to so many different uses. Button hole sewing, gauging, boot sole sewing, fancy and ornamental stitching, straw plait sewing and sail sewing machines, and the adaptation of the sewing machine to so many other purposes, have been the work of other brains. Perhaps the newest use to which this wonderful piece of mechanism can be put is, what is called the sewing of bolting cloth. That material is a substance somewhat resembling gauze, but of much firmer texture, and it is used by millers, when strained over a frame, for sifting flour. Hitherto it has been found impossible to sew this material except by hand—a slow and costly process. This invention, like so many others, owes its origin to an American brain, a gentleman in the employ of the Weed Company of America being the inventor. We have mentioned this machine to show that there are even yet uses to which the sewing machine can be put; and one needs but look around him to see that there are many branches of manufacture in which that machine could be profitably employed, were it but adapted to the particular requirements. There is yet a wide field for the usefulness of the sewing machine, and we urge our English inventors to give this subject their consideration, and not be altogether beaten by cousin Jonathan.

The further particulars promised in our last issue respecting Nasch's Patent Button Hole Attachment will be found in our advertising columns. A limited Company has been formed, with a strong directorate, consisting largely of gentlemen practically acquainted with the manufacture of sewing machines, and whose names will inspire investors with confidence in the success of the undertaking, the capital being £15,000, in £1 shares; but it is now proposed to raise only half, £7,500. The Directors take 2,000 shares, and as there will thus remain but a few on offer, investors should apply at once at the offices of the Company for a complete prospectus.

OUR ILLUSTRATED SUPPLEMENT.

We illustrate one of the foot lathes, for the manufacture of which the Britannia Company, of Colchester, has obtained a high reputation. The bed of this machine is 4ft. long and $4\frac{1}{2}$ inches on face—total weight of lathe about $4\frac{1}{2}$ cwt. It has an improved treadle motion, combining great power with ease of motion, the bright turned shaft on which wheel is keyed runs on three friction rollers at each end. The crank (as illustration shows) is *outside* the left hand standard, and is slotted in order that the driving stud may be adjusted to give more or less leverage, to increase or decrease power at will of the operator. The fly-wheel is counterbalanced to avoid dead centre. The illustration represents the lathe with back gear and gap bed.

Each lathe is accompanied by hand-rest with two tees, two face plates (large and small), two plain centres, and spanners.

THE WHITE COMPANY'S NEW TAILORING MACHINE.

The White Company has brought out a new tailoring machine, which, while embodying all the usual features of the White Family Machine, is possessed of some new and valuable points. Although this machine has been brought out in New York but a few weeks, it has already had a considerable sale. In a subsequent issue we shall give full particulars of it.

STEAM POWER ON SEWING MACHINES.

BY CHECK LEVER.

THE experience of the writer in factories in which the motive power on the sewing machines used was steam has made it clear to him that the difference between adjusting for foot power and steam power is very great. In the first place, the needle is set for shuttle machines, as a rule, one thirty-second of an inch lower; the throat-plate must be perfectly smooth, also the shuttle and carriage; and the machine must be perfectly timed; there must be no lost motion between the needle-bar cam and roller. In a word, the machine must be in absolutely perfect order.

In a large factory, running two hundred machines, situated close to the place from which I write this, the shuttle machines are run at 1,660 stitches a minute. The thread used is No. 90 three-cord, 2,400 yards of which are placed on a horizontal spindle instead of an upright one, as the weight of a spool on an upright spindle is sufficient with a light tension (necessary to have a good stitch) to break threads. Needles sometimes come out as blue as indigo after being run fifteen minutes in some kinds of goods.

Various breakages occur in machines run by steam power: face-plates split, needle-bar cams and cam-roller heads become broken, and cam-rollers and studs are often knocked out of machines that have not been in use six months. A good deal of injury is done by the girls not oiling the machines as they should, for fear of getting it on the work, and soon the horizontal shaft gets sufficient end shake for the cam-roller to strike the needle-bar. In the factory I mentioned the Wheeler & Wilson Co. lately put three of their "No. 8" machines in on trial, but at first there was trouble with them on account of their breaking thread, the machines not having been adjusted to the use of No. 90 three-cord thread, although the stitch made by them excelled any other machine in the factory. The gentleman who had the machines in charge for the Wheeler & Wilson Co., Mr. Chas. A. Crowell, readily overcame the trouble of thread-breaking, without any detriment to the machines, by simply dressing off the rotary-hook a little, so as to let the thread drop off quicker, since which they have done perfect work.

BROWN TINT FOR IRON AND STEEL.—Dissolve, in four parts of water, two parts of crystallised chloride of iron, two parts of chloride of antimony, and one part of gallic acid, and apply the solution with a sponge or cloth, to the article, and dry it in the air. Repeat this any number of times, according to the depth of colour which it is desired to produce. Wash with water and dry, and finally rub the articles over with boiled linseed oil. The metal thus receives a brown tint and resists moisture. The chloride of antimony should be as little acid as possible.

ABSTRACTS OF SPECIFICATIONS.

Abstracts marked with a * relate to applications not proceeded with. The number of Views given in the Specification Drawings is stated in each case after the price; where none are mentioned the Specification is not illustrated.

2920. APPARATUS FOR CLEANING AND REMOVING THE SKINS FROM POTATOES: C. L. HANCOCK, Dudley, Wore. [6d. 3 Figs.]—The principal feature is the brush and jagged surfaced punctured plate acting conjointly within the vessel. (June 20, 1882.)

2926. COOKING RANGES AND STOVES: A. K. ROBINSON, Leeds. [6d. 3 Figs.]—In ranges fitted with two or more low ovens an angular boiler is formed so that it protects the sides of the ovens from the intense heat of the fire, and replaces the usual fire-brick protector. (June 20, 1882.)

2960. MACHINERY FOR THE MANUFACTURE OF CUT NAILS: J. W. SUMMERS, Stalybridge. [6d. 4 Figs.]—Relates to machines for making "cut" nails. The tube through which the metal strip passes has a continuous intermittent rotary motion imparted to it by the use of a star wheel, a periodic "dwell" being given to the strip to facilitate cutting off of the nail. Refers also to the use of an eccentric for raising and lowering the tube, &c. (June 22, 1882.)

2964. VELOCIPEDES OR TRICYCLES: W. MORGAN-BROWN, London. (F. White, Westboro', Mass., U.S.A.) [4d. 11 Figs.]—The velocipede is propelled by a lever operated by the body and arms of the occupant with a movement somewhat similar to that of rowing. (June 22, 1882.)

*2976. HANDLES FOR JUGS, MUGS, TEAPOTS, &c.: J. GRUNDY, Bristol, Mass., U.S.A. [2d.]—The handles are of metal and are fastened to the china or other body of the vessel by being passed through holes therein and secured by nuts. (June 23, 1882.)

2997. OIL CAN: G. CORNUT and A. CASTELIN, Paris. [6d. 5 Figs.]—The oil is ejected in large or small regular quantities by the pressure of air upon the oil surface through a packed telescoping spring cap. (June 21, 1882.)

2998. WEIGHING MACHINES OR BALANCES: C. D. ABEL. (H. Gerike, Berlin.) [8d. 7 Figs.]—A series of levers forming a parallel motion for supporting the scale pan have six articulated connections. A heavy or light weight is used, corresponding with which is a double pointer, one hand serving for heavy and the other for light weights, according to the object to be weighed. (June 24, 1882.)

3000. KITCHEN RANGES: G. DAWSON and C. BUTCHER, Thorncliffe, Yorks. [6d. 5 Figs.]—Consists of a furnace door of box form with air passages entering at the bottom of the outside, and leaving at the top of the inside, with an ash-pan having an adjustable air regulator. (June 24, 1882.)

3014. TRICYCLES: T. F. MARRIOTT, Leeds. [2d.]—A toothed wheel on the hubs gears with a wheel on the crank-shaft, and has attached to it an eccentric provided with a handle. This handle is used to alter the position of the cranks when they get "cross centre." (June 26, 1882.)

3020. WEIGHING MACHINES: H. E. NEWTON. (E. A. Chame-roy, Paris.) [6d. 10 Figs.]—The sliding weights on the steelyard are actuated mechanically by means of bevel and rack gear instead of being moved by hand. (June 26, 1882.)

*3022. MANUFACTURE OF INDIA-RUBBER TYRES, &c.: A. J. WYLEY and B. COLLINS, Manchester. [2d.]—The tyre prepared in the ordinary manner is drawn into a straight tube of the desired section and semi-vulcanised, cut to the required length, the two ends spliced, and again placed in the vulcanising pan in the endless form. (June 27, 1882.)

3023. VELOCIPEDES: G. MOSS, London. [4d.]—A rotatory motion is given to the driving axle by means of a ratchet and pawl; the brake is formed of a friction clutch. (June 27, 1882.)

3037. MACHINES FOR SYRINGING PLANTS: J. A. DRAKE and R. MUIRHEAD, Maidstone. [6d. 17 Figs.]—Liquid is forced from a tank carried on wheels through pipes and branches for distributing it in the form of a spray in an upward direction upon the undersides

of the leaves of the plants while the machine or vehicle is travelling. (June 27, 1882.)

*3040. MACHINES FOR CLEANING KNIVES: R. WALLWORK, Manchester. [2d.]—Refers to apparatus in which two rotating india-rubber discs are employed to clean the knives, which are placed between the discs. (June 28, 1882.)

*3043. TOOL FOR DRAWING CORKS: T. P. WYMOND, London. [2d.]—After the instrument has been inserted into a cork, a barb is caused to open out, which embeds itself in the cork and causes its withdrawal on the instrument being pulled. (June 28, 1882.)

*3050. HANDLES OF LAWN TENNIS BATS, &c.: C. W. MEITER and R. C. B. MOTH, London. [2d.]—To obtain a more perfect grip than usual, the handle has serrations pointing in opposite directions. (June 28, 1882.)

*3082. BOILERS FOR HEATING AND CIRCULATING WATER: S. NEWBOLD and S. THORNLEY, Liverpool. [2d.]—In one modification treated by gas, the upper part is dome-shaped, and is connected by pipes to the lower part, which is cylindrical at top, then narrows down to the throat (over which is the gas burner), and is again cylindrical. (June 30, 1882.)

*3084. MACHINE WHEREBY POTATOES, &c., CAN BE SEPARATED INTO SIZES REQUIRED: S. COPELAND, Beverley. [2d.]—The potatoes are passed by a screw through a revolving barrel and escape through meshes of various grades which form the outside. (June 30, 1882.)

*3121. TRICYCLES, &c.: W. J. LLOYD, Harborne, Staff. [2d.]—Relates to the parts connected with the hind or steering wheel and the steering apparatus of the tricycle. (July 1, 1882.)

3122. COATING OR PLATING CERTAIN METAL SURFACES WITH CERTAIN OTHER METALS OR ALLOYS: A. M. CLARK, London. (C. Haegeler, Geislingen, Germany.) [4d.]—Copper, iron, steel, German silver, and brass alloys (poor in zinc), with or without intermediate sheets of copper, are coated by welding without flux or solder with (a) German silver and brass like alloys containing a low percentage of zinc and perhaps a little phosphorus, and which at a red heat evaporate only minute quantities of zinc, but must be rolled cold to the thickness required; (b) copper nickel alloys, which can be rolled; (c) brass and German silver alloys, which can be rolled when red-hot; (d) alloys of copper-tin (tin about 12 per cent.); (e) alloys of copper aluminium. These may be plated with precious metals or with nickel, in which latter case they may be plated afterwards with a precious metal. (July 1, 1882.)

3166. HEM-STITCHING MACHINES: A. GASS, Belfast. [2d.] A moving face carries the needle bar and shuttle box laterally together on the countershaft. This face is connected by means of a rod with an adjusting lever actuated by a cam. (July 5, 1882.)

5062. SEWING MACHINES: S. PITT, Sutton. (L. B. Miller and P. Diehl, Elizabeth, N. J., U. S. A.) [8d. 21 Figs.]—Refers to former Patents 2813 of 1878 and 3079 of 1879, and relates primarily to the feeding and shuttle driving mechanism and the presser bar shuttle and tension mechanism of sewing machines. The invention could not be clearly described within the space at our disposal, it consists of certain constructions and combinations of mechanical devices which are set forth in detail. (October 24, 1882.)

5165. GAS COOKING STOVES OR RANGES: A. M. CLARK, London. (W. W. Goodwin, Philadelphia.) [4d. 4 Figs.]—Relates to the construction and arrangement of the top plates of stoves and of burners, a second apertured plate provided with flanges being placed beneath the apertured top plate. The heating chamber has an exit to the escape flue and is separate and distinct from the combustion chamber and flue passages in the lower part of the stove. (October 30, 1882.)

CUTLERY AT SHEFFIELD.

AN American gentleman has recently visited several of our largest manufactories at Sheffield. His impressions concerning the industries of that town are as follows:—

In a recent visit to some of the manufacturing centres, that which struck me most in regard to what may be called "the industrial situation," is the earnest and courageous efforts which are being made to redeem the errors of the past, to conquer the difficulties of existing competition, and to be prepared for onslaughts upon British supremacy in the future. In some previous notes on Sheffield I dwelt upon the active work of the edge tool makers (one firm in particular) in skilfully and carefully covering the entire ground of their operations. A few years ago, for example, both masters and men were inclined to reject American inventions and models. Indeed, instances were brought under my notice in which men had thrown up their employment rather than make axes, saws, and other special articles on new lines. It was useless to tell them that the new forms were the result of American experience and wants. The men were like Tennyson's farmer—they were "not going to break their rule." It was just the same when Germany sent to Sheffield certain patterns of cutlery that were outside the traditions of the local trades. Germany had to send her work elsewhere or do it at home; and these incidents were among the influence that a few years ago reduced the trade of Sheffield to its lowest ebb. The fact that to-day it is once more prosperous is largely owing to the renunciation of this foolish exclusiveness in regard to models or methods of production,

"I do not believe," said a gentleman who thoroughly understands the men, "that they were selfishly perverse; they were jealous of the local name; they regarded themselves as the chief experts in the art of cutlery and edge tool manufacture; they looked upon foreign innovations as inimical to the high character of their work, and they resisted all of them. You know Ruskin has praised the honesty of Sheffield work, and he has founded his museum in this neighbourhood because he believes in the genuine character of Sheffield artificery and in the integrity of the Sheffield workman."

I found this somewhat romantic view borne out in a large measure on a visit which I made to the works of some famous cutlers, whose trade mark has long been a guarantee for finely-tempered blades and superior cutlery. In the face of growing competition they have recently been pushed into the production of cheaper goods than those upon which their reputation is founded. Their knives and forks and the various articles in which they deal had, until a comparatively recent date, been made by hand, as to-day vast quantities still are. When the time came for them to introduce all the modern mechanical aids into their manufactory, they built and fitted up new works, altogether away from the old establishment, and introduced a fresh set of men to carry out the new modes and inventions. The original establishment was not disturbed, the hand-workers, with all their ancient systems, were maintained as before, and all the best work is still produced, more or less, as it was in the old times when Sheffield had no competitor on the Continent or in America.

Lying before me is a carving-knife which I saw made from beginning to end on the Sheffield method of the past, the method which still gives to the world at large its best blades of all kinds. The blade was first cast, then

forged (as Tubal Cain himself might have forged), then ground and polished, and finally mounted with its haft, each operation being by hand. The knife in the course of its manufacture passed through the hands of the most skilful and expert men of the various departments, and I learned a few points as to the details of their positions and earnings. The chief forger, who takes the blade and hammers it into condition for the grinder is literally the master of his shop, and earns on an average £6 per week, which goes much farther in England than in America. It was interesting to note with what skill he and his assistants hammered into shape and tempered the rough steel. Close by was the grinder, who took the blade and manipulated it as deftly as if it was the most harmless thing imaginable. I am told that native American workmen are not in the habit of fingering the blade on the grindstone as Sheffielders do. Here the grinder literally feels and presses the blade with his hands upon the stone as he gives it what is called the "Sheffield touch." This Sheffield grinder, as the head of his trade, is entitled to have a certain number of apprentices. He trains, educates, and pays them; and it is not only his pride but his interest to make first-rate workmen of them. In the case of the grinder who puts brightness and edge upon the blade before me, he has six apprentices, and he takes for his week's work an average of £20, of which his own share comes to £12. It is hardly necessary to say that he is paid by "piece work;" indeed, this is the general system of the manufactory. Ruskin, in speaking of the solid character of Yorkshire workmen, said that the ironwork of England is "masterful of its kind," an observation of which I have been frequently reminded while standing by the side of Sheffield anvils. Walking through certain cutlery works, I was shown several departments which are maintained just as they were half a century ago, the details of hand manufacture being carried out on the very oldest plans, and by workmen who, having been educated in the old schools, refuse to adopt the principles of the new. One can easily imagine how difficult must be the introduction of mechanical reform among this old class of workmen; and nothing is more strongly illustrative of the energy and foresight which is characteristic of the masters of to-day than the erection of a new factory worked by new men on the part of the fathers of the Sheffield cutlery trade.

It is not my business or purpose to describe the establishment under notice, but as a representative house the points which belong to its methods are of value. I found among the new things to which the great cutlery house had condescended was the use for knife hafts of other substances than bone and ivory, namely, a material called xyonite, or ebonite black, an imitation of ebony. If it were produced as well in white as in black it would be increasingly popular. A white kind is used for hand-glass frames and brushes, but in cutlery of a good quality only the black is adopted. After being taken into the ivory cutting rooms, where elephants' tusks are converted into handles, I was introduced to the store room, and shown enough ivory to account for the deaths of many hundreds of elephants. And here I beg to give the reader some figures for an interesting calculation. In the cutting rooms just mentioned twenty-four tons of ivory are worked up every year. Now, an elephant's tusk weighs on an average thirty-five pounds. How many elephants, therefore, must die every year to supply this one cutlery house with knife handles?

Said the technical and excellent guide who conducted me over the works: "The ivory trade is declining; the hunters have to go farther and farther inland every year for the tusks, or teeth, as they are called in the trade; as a rule it takes twelve months for a tusk, when captured, to reach the coast for shipment." "America," I remarked, "at one time did a large trade in ivory through England; looking at some late returns I see a great change; but that cannot be wholly on account of the increase in price?" "Oh, no," he said, "the supply to America used to go direct from here; now it is shipped direct to New York. The London supply is now largely diverted. Rotterdam takes a vast quantity. Ivory increases in price every month. African ivory is the best, and the price of African for knife handles is exactly double the price it was four years ago."

I noticed in the storerooms large quantities of electro-plated table knives being packed for America. This particular kind of knife is not used at all in England. Its popularity in America is understood to arise from the easy way in which it can be cleaned. In English households sharp steel knives are always used, and we have several kinds of knife cleaning machines, which are leading features of the mechanical, labor-saving contrivances of English kitchens. In the show rooms the famous knife of many blades that cost £1,500 to make and was the cutlery lion of the Paris exhibition was on view. The pearl blade cost £500. On one of the large blades is a view of Washington. "It is a true test of good steel," said my guide, "when you see a perfect landscape on a blade; if the steel were not perfect the acid that bites it in would run and blur the picture."

Now, it does not follow that machine made cutlery may not be as good as hand made; but it is certain that it can be produced at much less cost. America demonstrated this long ago; but it is only within a comparatively recent date that first class English firms have supplemented their hand productions with complete mechanical contrivances. But for American and German competition, the new cutlery manufactory I have already mentioned would certainly not to day be in existence. This new concern is chiefly dedicated to the manufacture of table and pocket knives, and the machinery includes every known appliance and invention deemed worthy of use. Upward of 500 people are employed in this new branch of the trade of an old house; and this one great change in Sheffield must be taken as indicative of the general mechanical progress. In a previous letter, referring chiefly to edge tools, I pointed out that a leading manufacturer explained to me that the American axe was a perfect thing because of the division of labour in its production. "One of my men," he said, "makes not only an entire axe, but several other implements. Not one of the men, as a rule, employed on the American axe could make the whole tool himself; one does this part, another that, and so on." I asked him if he employed any American workmen here. "No," he said, "an American offered his services a few months ago. He said he could make axes. 'All right,' I said; 'go ahead.' The poor fellow thought he could, but he failed. He had been employed on the other side in one department of the work; he had studied the others and thought he could do the whole thing, but he could not." I mention this incident to point out that Sheffield is now alive to the American system, and that it is no longer too proud to adopt the best features of American contrivances to expedite production.

DECORATIVE BRASS WORK.

NO one can fail to be struck with the great amount of brass-work used in decorating modern houses. We find it everywhere; indeed, the frequency of its appearing almost recalls the day when hammered brass and repoussé were the glory of gold workers, who did not disdain to exercise their skill upon the baser alloyed material. There is a very close connection between bronze work and brass work, but whereas the former, fashionable as it is, is mainly the work of foreign artisans, under the direction of French and Belgian principals, the latter is daily becoming more successful as an article of domestic manufacture. The reason of this is obvious. Most of the ornamental brass work upon stoves, fenders, chandeliers, and articles of the same kind, can be manufactured in large quantities, and after the models are once made the process becomes mechanical; where the perfection of bronzes lies in the artistic finish given to each individual piece. In England the greatest perfection is attained in "hammering" brass, that is to say, in making shaped articles out of a single piece of metal. For instance, the brass coal-scuttles which play so important a part in the parlor decorative furnishing to-day are almost all of English manufacture. In the same way the very fine gauze work of which brass screens and shades are made is generally of French origin. It is difficult to imagine where the use of brass in decoration will stop. It has so much to recommend it that it is no wonder it is becoming more and more popular, and that it is to be met with alike in the homes of the wealthy and the small apartments which are at the command of persons of very limited income.

There is much that is of interest in the manufacture of brass. It is in reality a composition made up of copper, zinc, and lead, and its value depends very largely upon the extent to which such material is represented in its make. The most ordinary piece of ornamental brass work has passed through seven processes before it is ready for sale. After the design has been furnished a cast is modelled in plaster of Paris and it then passes to the moulder, who casts it in metal. The filer then works upon it and rids it of all imperfections and unevennesses, when it is ready for the chaser. The article, whatever it may be, probably consists of various parts, which are now brazed together with hard solder and forwarded to the filer once more and then to the polisher and colorer. The ornamental open work with which we are familiar upon the chains of chandeliers, or that which has the appearance of half-relief, is made by a difficult process, and for this branch of ornamental brass work competent hands receive high wages. Very often it is intermixed with and relieved by open iron work or bronze, but is, as every one knows, entirely different in effect; it is so bright and so susceptible of polish that it is introduced with increasing favor. Embossed sheet brass is used for finger plates to doors, for panels, and for the decoration of flat surfaces in almost every position. Brass plaques shine resplendently upon the walls, hammered brass salvers replace those of silver or electro-plate, and in domestic utensils of every kind brass is used for the exterior.

THE firm of W. H. Davis & Co., metallic bedstead manufacturers, of the Anchor Works, Macdonald-street, Birmingham, having been dissolved, the business will be continued by Mr. W. H. Davis.

MESSRS. HENRY GREEN & Co., export ironmongers, &c., are about removing from No. 3 to 7, Gracechurch-street.

MECHANICAL NOTES.

A CORRESPONDENT recommends the following method of soldering cast iron: Get a good smooth joint by filing the broken part, and then if the surface is large enough drill a hole in each piece and put a pin in. Then take a piece of wrought iron thick enough to fill up what has been filed off and place it between the two pieces by making a hole to fit the size of the pin, and wire it strongly together so that it will not give. In heating use small pieces of brass, or spelter, which is better, and use as a flux borax ground up with water. The article must be free from grease and dirt. It is often best to wind fine iron wire around the joint to make a good job. This plan has often been tried and found successful.

GROUND bone dust is an excellent article for case hardening. The articles to be hardened may be packed with the dust in an iron box or a short piece of iron gas pipe that is securely closed at one end. The box or pipe must be tightly closed, inserted in the fire and brought to a red heat. If the boxes are large they require a longer time to heat than if they were small. After the work is hot it may remain in the fire from fifteen minutes to an hour, according to the size of the articles; then withdraw and empty the heated work quickly into cold water. Be careful that the work comes to the air as little as possible. If prussiate of potash be powdered and mixed with the bone dust the result may be a more satisfactory case harden. Cyanide of potassium will also case harden, but as it is poisonous it must not be allowed to come in contact with sores or raw flesh. If the work be heated hot and smeared with the cyanide so that it will flow, then heated to a red and plunged in cold water, a superficial case harden is quickly and easily obtained.

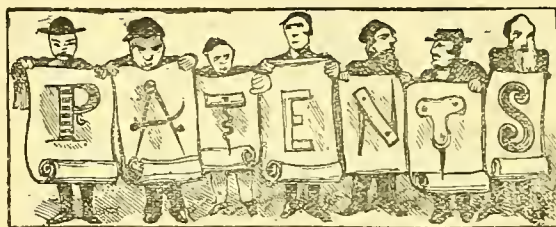
WATER that has soap in solution is unfit to temper with. Water for tempering should be clean and pure. To ensure greater hardness a handful of common salt may be added to a bucket full of water, so as to form a saline solution.

To transfer drawings or engravings to a varnished surface, spread a thin coat of copal varnish evenly over the surface to be ornamented, and when nearly dry apply the engraving with its face to the varnish, and carefully press to exclude all air-bubbles. When the varnish is sufficiently dry the paper is thoroughly moistened with a sponge dipped in warm water, when it can be rubbed off, leaving all the lines of the print upon the varnish surface.

THE *English Mechanic*, in commenting on the persistency of screw-drivers in slipping out of the nick in screw heads and of their refusal to go into the nick, says, as a remedy, that all that is wanted is a short tube big enough to enclose the screw head, somewhat tightly, but only spring-tight, so that it may rise as the screw head comes near the wood. A provision for heads of different sizes with the same driver can be made by turning up a strongish tin tube like a pencil case, big enough to slide over the point of a round screw-driver, fitting spring-tight on the shank by means of a piece of leather wrapped around it; and for larger screws than usual, pull the socket off and put a larger on, with a thicker piece of leather. It is not necessary to even look at the screw, but just put the tubed screw-driver on and turn. It will drop into the nick at the first half turn and stay there till the screw is screwed home.

THERE is a process in use for removing blueing from steel by immersing in a pickle compound of equal parts of muriatic acid and elixir vitriol, and afterwards rinsing in pure water and drying with tissue paper.

A GERMAN method of nickel plating small articles without a battery is as follows: Heat to boiling a bath of pure granulated tin, crude tartar and water, adding a small quantity of highly heated nickel oxide. Articles immersed in this solution will become almost instantly covered with pure nickel. Cobalt salt added gives the coating a blueish tint, and a high polish may be given by rubbing with dry sawdust or chalk.



The following list has been compiled expressly for this Journal, by Mr. G. F. Redfern, Patent Agent, of 4, South Street, Finsbury, London, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 202. J. Bilsland, of Glasgow, Rivet, Bolt, and Screw Manufacturer, for improvements in forming the heads of bolts, rivets, spikes, and other articles of a similar description, and in the apparatus or means therefor. Dated January 13, 1883.
- „ 213. E. A. Showell, junior, of the firm of E. Showell and Sons, of Birmingham, Brassfounders, and C. Turner, also of Birmingham, for improvements in sash and case-ment fastenings. Dated January 13, 1883.
- „ 223. R. Watkinson, of Salford, Lancashire, Brassfounder, for improved double-lock universal joint for coupling pipes and other purposes. Dated January 15, 1883.
- „ 228. R. F. Farquharson, of St. Mary-axe, London, for improvements in kettles. Dated January 15, 1883.
- „ 234. J. Hudson, of Bolton, Lancashire, Joiner, for certain improvements in apparatus for holding and releasing roller blinds. Dated January 15, 1883.
- „ 237. H. H. Lake—a communication from C. R. C. French and F. Bullivant, both of Providence, Rhode Island, United States, Machinists, for improvements in and relating to screw-taps. Dated January 15, 1883.
- „ 238. H. H. Lake—a communication from J. Bennor, of Philadelphia, Pennsylvania, United States, for improvements in and relating to water-closets, parts of which improvements are applicable for other purposes. Dated January 15, 1883.
- „ 244. W. Wright, of Droylsden, Lancashire, for improvements in the construction of latches or fastenings for doors, gates, or shutters. Dated January 16, 1883.
- „ 247. A. M. Clark—a communication from G. B. Ward, of New York, United States, Gentleman, for improvements in treadle mechanism for driving sewing and other machines. Dated January 16, 1883.
- „ 263. H. H. Lake—a communication from J. P. White, of Savannah, Georgia, United States, for improvements in locks and keys. Dated January 16, 1883.
- „ 267. J. Adams, of Philadelphia, Pennsylvania, United States, Weaver, for improvements in knitting machines. Dated January 17, 1883.
- „ 268. W. Ralston, of Manchester, for improvements in making chains or other interlinked or intricate articles of cast steel or other cast metal. Dated January 17, 1883.
- „ 290. J. D. Sprague, of Beulah-hill, Upper Norwood, Surrey, for improvements in holders or fastenings for blind, sash, and other similar cords. Dated January 18, 1883.
- „ 297. G. Macaulay-Cruikshank—a communication from S. H. Raymond and C. N. Shepard, both of Grand Rapids, Michigan, United States, for improvements in automatic locking devices for nuts, bolts, and similar objects. Dated January 18, 1883.
- „ 311. H. Van der Weyde, of Regent-street, London, for improvements in tricycles. Dated January 18, 1883.
- „ 312. J. J. Raggett, of Aston, near Birmingham, Architectural

- Draughtsman and Surveyor, for improvements in type-writers, parts of which improvements may also be applicable to endorsing and other like stamps, and to cutting and perforating stamps. Dated January 18, 1883.
- No. 325. H. H. Lake—a communication from the Harvey Screw Company (Incorporated), of New York, United States, for an improved wood-screw. Dated January 19, 1883.
- „ 336. J. W. Blakey, of Leeds, for improvements in the means employed for preventing the freezing of water to be used in water-closets and for other purposes. Dated January 20, 1883.
- „ 345. W. Brierley—a communication from P. Frost, of Breslau, Germany, for improvements in combination tools for kitchen use. Dated January 20, 1883.
- „ 352. J. M. Hart, of the firm of Hobbs, Hart and Co., of 76 Cheapside, London, for improvements in fire resisting doors and in means for ensuring the proper locking and also the close fitting of doors or covers of safes and other depositories. Dated January 22, 1883.
- „ 353. J. M. Hart, of the firm of Hobbs, Hart and Company, of 76, Cheapside, London, for improvements in locks and latches, and in parts connected therewith. Dated January 22, 1883.
- „ 356. G. L. Cumberland, of Southampton-buildings, London, for improvements in metal cases or canisters for holding tea or other articles. Dated January 22, 1883.
- „ 365. J. Hopwood, of Heaton-Norris, Lancashire, for improvements in the construction of velocipedes. Dated January 23, 1883.
- „ 369. G. S. Grinston, of Brockley, Kent, and A. S. Bower, of Saint Neots, Huntingdonshire, for improvements in gas burner apparatus. Dated January 23, 1883.
- „ 382. J. Watson, and G. Whalley, both of Keighley, Yorkshire, Machine Makers, and T. Weatherill, of Leeds, Traveller, for improvements in vehicles propelled by the riders. Dated January 24, 1883.
- „ 394. W. H. J. Grout, of Watson-street, Stoke Newington, London, Engineer and Velocipede Manufacturer, for improvements in and relating to velocipedes. Dated January 24, 1883.
- „ 409. J. Nasch, of Whitechapel-road, London, Engineer, for improvements in or applicable to sewing machines. Dated January 25, 1883.
- „ 411. C. Thompson, of Newington-butts, London, Perambulator Manufacturer, for improvements in perambulators. Dated January 25, 1883.
- „ 416. F. Wirth—a communication from G. Speckhart, and H. Wiedmann, both of Nürnberg, Germany, for improvements in hammers. Dated January 25, 1883.
- „ 417. T. Marshall—a communication from J. B. Carter, of New Jersey, United States, for an improved apparatus for scraping, peeling, paring, and slicing potatoes, turnips, carrots, and like roots, also fruit, such as apples, and for coring the same. Dated January 25, 1883.
- „ 435. A. R. Holland, of the Grand Hotel, Charing-cross, London, Hotel Proprietor, for improvements in the ventilation of apartments and railway and other carriages. Dated January 26, 1883.
- „ 440. W. T. Shaw, of Adelaide-road, Surbiton, Surrey, and W. Sydenham, of Wood-street-chambers, Old-street, London, for improvements in velocipedes and apparatus connected therewith. Dated January 26, 1883.
- No. 442. A. F. Link—a communication from F. Desples, of Cnques, France, for improvements in apparatus for cooking food and keeping the same warm. Dated January 27, 1883.
- „ 452. F. W. Small, of Walsall, Staffordshire, Brown Saddler, for improvements in bicycle and tricycle saddles. Dated January 27, 1883.
- „ 457. A. Arnott, of Wandsworth, London, for improvements in fastenings for doors. Dated January 27, 1883.
- „ 467. H. H. Lake—a communication from J. Oertel and Company, of Haida, Bohemia, for improvements in the manufacture of reflectors or reflecting lamp shades or globes. Dated January 27, 1883.
- „ 468. W. Jeans, of Christchurch, Hampshire, for improvements in velocipedes. Dated January 29, 1883.
- „ 473. J. Hall, of Stourbridge, Worcestershire, Manufacturer of Enamelled Baths and Bricks, for improvements in the manufacture of porcelain fire-clay baths. Dated January 29, 1883.
- „ 475. J. Russell, of Reading, Berkshire, Agent, for improvements in gas cooking stoves. Dated January 29, 1883.
- „ 485. W. E. Fisher, of the firm of J. Barwell, Son, and Fisher, of Birmingham, Chandelier Manufacturer, for improvements in the construction of advertising tablets, and in the method of conveying gas to the same for the purpose of illuminating them, which improvements are in part applicable to vestibule or hall lamps and other lamps, and to mirrors and other articles having metallic frames. Dated January 29, 1883.
- „ 487. R. H. Brandon—a communication from the Morley Sewing Machine Company, of Boston, Massachusetts, United States, for improvements in sewing machines. Dated January 29, 1883.
- „ 489. J. A. B. Bennett, of King's Heath, Worcestershire, Science Master, and J. Herd, of Edgbaston, Birmingham, Gentleman, and B. P. Walker, of Edgbaston, aforesaid, Engineer, for improvements in heating and cooking stoves. Dated January 30, 1883.
- „ 494. E. K. Dutton—a communication from J. Sieper, of Remscheid-Hasten, Rhenish Prussia, Germany, Skate Manufacturer, for improvements in skates. Dated January 30, 1883.
- „ 502. A. W. L. Reddie—a communication from W. H. Schofield, of Brooklyn, New York, United States, for improvements in vices. Dated January 30, 1883.
- „ 505. J. H. Norrington, of Harlesden, Middlesex, Ironmonger, for improvements in attachments for brackets, arms, or shelves to their standards, also applicable for supporting picture and other rods or rails. Dated January 30, 1883.
- „ 511. L. W. Leeds, of Old Jewry, London, Heating and Ventilating Engineer, for improvements in and connected with the manufacture of radiators for heating purposes. Dated January 30, 1883.
- „ 514. J. Rettie, of Hatton-garden, London, Engineer, for improvements in gas burners. Dated January 30, 1883.
- „ 525. F. McIlvenna, of 1, Hilton-street, Manchester, and of Wood-street, London, Shop fitting Manufacturer, for improvements in the method of exhibiting goods and samples in shop windows and other places, and in apparatus therefor. Dated January 31, 1883.
- „ 527. H. J. Haddan—a communication from E. Capitaine, of Berlin, for improvements in shuttles for sewing machines. Dated January 31, 1883.
- „ 533. H. B. Barlow—a communication from O. Cazeneuve, of Montrejeau, Haute Garonne, France, for improve-

- ments in knitting machines. Dated January 31, 1883.
- No. 534. F. A. Colley, and J. Wingfield, both of Sheffield, for improvements in stands for holding vessels containing milk, ices, or other similar refreshments, and for protecting the contents from dust, flies, &c. Dated January 31, 1883.
- „ 536. R. H. Froude, of Courtland-terrace, Kensington, and J. Jenner, of King-street, Kensington, London, for improvements in the driving-gear of bicycles, tricycles, and such like vehicles. Dated January 31, 1883.
- „ 544. F. J. Austin, of Merton Cottage, Bath-road, Hounslow, Middlesex, Sanitary Engineer, for an automatic flushing and antiseptic tank. Dated February 1, 1883.
- „ 546. S. Williams, of 21, Albert-street, Camborne, Cornwall, Commission Agent, for improvements in lamps. Dated February 1, 1883.
- „ 548. W. E. Gedge—a communication from E. Kohler, of Oakland, California, United States, Gentleman, for improvements in sewing machinea. Dated February 1, 1883.
- „ 550. C. Mohr, of Birmingham, Manufacturer, for a new or improved spring hasp or clip for securing the lids of trunks, boxes, and the like. Dated February 1, 1883.
- „ 569. W. Blakely, of Bournemouth, for improvements in tricycles. Dated February 1, 1883.
- „ 572. W. Blakely, of Bournemouth, for improved means of holding or securing the globes on lamp burners. Dated February 1, 1883.
- „ 574. A. Burdess, of Coventry, for improvements in tricycles. Dated February 2, 1883.
- „ 596. J. Imray—a communication from H. Giroud, of Paris, for improvements in pressure regulators for gas. Dated February 3, 1883.
- „ 599. S. S. Hellyer, of the firm of Dent and Hellyer, of New-castle-street, Strand, London, Engineer, for improvements in water-closets and slop-sinks and in fittings for the same. Dated February 3, 1883.
- „ 600. T. Fletcher, of Warrington, Lancashire, for improvements in and applicable to cooking stoves and ranges for gas and solid fuels. Dated February 3, 1883.
- „ 610. F. A. L. de Gruyter, of the firm of F. A. L. de Gruyter, of Amsterdam, for improvements in apparatus for lighting by gas. Dated February 5, 1883.
- „ 615. T. Webster, of Edinburgh, for an improved apparatus for closing and opening curtains. Dated February 5, 1883.
- „ 619. G. W. von Nawrocki—a communication from O. A. Ludewig, of Stettin, Germany, for improvements in hinges for doors and the like. Dated February 5, 1883.
- „ 630. N. W. Wallace, Major, half-pay, in Her Majesty's Service, of Clifton, Gloucestershire, for an improved self-protecting portable saw. Dated February 5, 1883.
- „ 651. H. C. Symons, of 2, George-street, Blackfriars-road, Southwark, London, Mechanical Engineer, for improvements in the mode of and apparatus or machinery for raising, lowering, and holding weights applicable to water-closet valves or levers and other analogous sanitary appliances, part or parts of which are applicable to window blinds and other useful purposes. Dated February 6, 1883.
- „ 652. M. Pinder, of Kennington, London, for improvements in gas clusters or burners, and in shade holders for same. Dated February 6, 1883.
- No. 657. R. Ogden, of Manchester, and R. J. Anderson, of Liverpool, for improvements in lamps. Dated February 6, 1882.
- „ 675. J. D. Kemp, of 127, Stepney-green, London, for improvements in oven furnaces and copper furnaces. Dated February 7, 1883.
- „ 678. E. Nunan, of Fleet-street, London, for improvements in propulsion appliances for bicycles, tricycles and other like vehicles propelled by man power, also in means and appliances for guiding such vehicles. Dated February 7, 1883.
- „ 679. L. T. Wright, of Beckton, Essex, for improvements in safety lamps. Dated February 7, 1883.
- „ 696. J. B. Fenby, of Sutton-Coldfield, Warwickshire, Civil Engineer, for improvements in taps or cocks for drawing off fluids. Dated February 8, 1883.
- „ 705. W. Russell, of the firm of W. and A. C. Russell and Co., of Scotia Foundry, Pendleton, near Manchester, for improvements in or applicable to kitchen and cooking ranges and stoves. Dated February 9, 1883.
- „ 712. G. Ermen, of Holcombe, Dawlish, Devonshire, Esquire, for improvements in and applicable to fire-places, stovea, or gratea. Dated February 9, 1883.
- „ 714. S. Deards, of Harlow, Essex, for improvements in the means or apparatus for warming houses. Dated February 9, 1883.
- „ 725. T. E. Bladon, of Birmingham, Lamp Manufacturer and Tin-plate Worker, for improvements in lamps for bicycles and other velocipedes, which improvements are in part applicable to carriage and other lamps. Dated February 9, 1883.
- „ 728. W. R. Lake—a communication from T. Carlsson, of of Eskilstuna, Sweden, for improvements in the manufacture of hand rakes. Dated February 9, 1883.
- „ 749. R. Walker, of Buckingham-street, Adelphi, London, for improvements in apparatus used in roasting meat or the like. Dated February 10, 1883.
- „ 759. J. Kennedy, of Strabane, Tyrone, Ireland, Shirt Manufacturer, for improvements in washing machines. Dated February 12, 1883.
- „ 760. J. M. Smith, of West Bromwich, Staffordshire, Velocipede Manufacturer, for improvements in apparatus for exercising with velocipedes for indoor or like practice. Dated February 12, 1883.
- „ 762. A. Codd, Plumber, of 29, Heaver Road, Battersea, London, for the prevention of water waste, and flushing cistern. Dated February 12, 1883.
- „ 771. H. H. Lake—a communication from the Harvey Screw Company, Incorporated, of Jersey City, New Jersey, United States, for improvements in the manufacture of screws, and in machinery therefor, and for other purposes. Dated February 12, 1883.

Letters Patent have been issued for the following:—

- No. 773. J. Poole, of Bradford, Yorkshire, Overlooker, for improvements in knitting machines. Dated February 17, 1882.
- „ 3400. J. Aylward, of Birmingham, Manufacturer, for improvements in perambulators and in perambulator and other wheels having metal apokes, part of such latter improvements being applicable also to wheels generally. Dated June 18, 1882.
- „ 3459. A. Dix and J. H. Dix, both of Rock Ferry, Cheshire, for improvements in apparatus for checking cords of blinds and other like articlea required to be pulled up and let down. Dated July 20, 1882.

- No. 3461. J. Shanks, of Barrhead, Renfrewshire, North Britain, for improvements in and connected with the valvular details of domestic apparatus for the supply and economical use of water. Dated July 21, 1882.
- „ 3487. E. Edwards—a communication from A. Marques, of Bordeaux, France, for improvements in apparatus for maintaining a constant draught in chimneys and preventing them from smoking. Dated July 22, 1882.
- „ 3511. W. Wright, of Plymouth, for improvements in flush cisterns, parts of which improvements are applicable for other purposes. Dated July 24, 1882.
- „ 3517. W. Corliss, of Providence, Rhode Island, United States, for improvements in burglar-proof safes, and in means for controlling and securing the door-operating mechanism. Dated July 25, 1882.
- „ 3533. W. Hunt, of Scarborough, Yorkshire, for improvements in taps. Dated July 25, 1882.
- „ 3565. H. Morris, of Manchester, for improvements in apparatus for adjusting ventilators, and for indicating the state of the temperature in any given place at a distance from such place, applicable also to other purposes. Dated July 27, 1882.
- „ 3600. J. P. Dalby, of Leeds, for improvements in tricycles, bicycles, and other similar vehicles. Dated July 29, 1882.
- „ 3611. A. Haley, of 52, Ashburton Grove, Holloway, and A. E. Savage, of 1, Pleasant Row, Canonbury, London, for automatic apparatus for regulating the supply of gas or other fluid. Dated July 31, 1882.
- „ 3613. A. C. Henderson—a communication from Messieurs Besson and Company, Manufacturers of Heating and Smoke-consuming Appliances, of 2, Boulevard de Strasbourg, Paris, for improvements in stoves for heating by a combination of hot air and water. Dated July 31, 1882.
- „ 3657. W. R. Lake—a communication from F. H. Chilton, of New York, United States, for improvements in embroidering apparatus for sewing machines. Dated August 1, 1882.
- „ 3688. W. Thomson, of Crompton Fold, Shaw, Lancashire, for improvements in and relating to door knobs. Dated August 2, 1882.
- „ 3699. J. Harrison, of Birmingham, Machinist, for improvements in bells for bicycles, tricycles and similar machines. Dated August 3, 1882.
- „ 3701. O. E. Hanewald—a communication from F. Haszelmann, of Munich, Germany, Architect, for improvements in means or apparatus employed for preventing down draught in chimneys and facilitating the escape of smoke; or which are also applicable for ventilating apartments, carriages, lamps, or other enclosures. Dated August 3, 1882.
- „ 3730. J. G. Horsey and T. Bell, both of Copperfield Road, Mile End, London, for improved appliances or apparatus for regulating and determining the speed of bicycles and tricycles by the rider when mounted. Dated August 5, 1882.
- „ 3765. E. Hunt—a communication from J. C. Davis, of Mount Clair, New Jersey, United States, for improvements in spools or bobbins for sewing thread. Dated August 8, 1882.
- „ 3768. H. Cullabine, of Sheffield, Gas-fitter, for improvements in lamps. Dated August 8, 1882.
- „ 3769. H. Gardner—a communication from R. M. Wanzer, of Hamilton, Ontario, Canada, for improvements in the details of sewing machines. Dated August 8, 1882.
- No. 3778. C. C. Greenway, of Grafton, New South Wales, and temporarily of Streatham Hill, Surrey, for an improved washing machine. Dated August 8, 1882.
- „ 3788. J. Imray—a communication from Messieurs Grimme, Natalis and Co., of Brunswick, Germany, for improvements in apparatus applicable to sewing machines for button-hole and over-head stitching. Dated August 9, 1882.
- „ 3793. J. S. Willway, of 17, St. Augustine's Parade, Bristol, Gas Engineer, for an improved construction of door-mat and scraper combined. Dated August 9, 1882.
- „ 3811. C. H. Southall, of Leeds, for improvements in apparatus for cleaning and polishing windows. Dated August 10, 1882.
- „ 3817. H. J. Haddan—a communication from W. Kilian, of Berlin, for improvements in apparatus for securing doors and windows against burglars. Dated August 10, 1882.
- „ 3847. W. H. Bulpitt, trading as Bulpitt and Sons, of Birmingham, Lamp Manufacturer and Tin Plate Worker, for improvements in lamps for collapsing or packing together into a small compass. Dated August 12, 1882.
- „ 3849. W. C. Mac Briar, of Sheaf Island Works, Sheffield, Vice and Engineer's Tool Manufacturer, for improvements in parallel vices. Dated August 12, 1882.
- „ 3860. J. E. Walsh—a communication from J. Kayser, of Kaiserlutern, palatinate of the Rhine, Germany, for improvements in shuttle sewing machines for button hole sewing. Dated August 12, 1882.
- „ 3886. J. Brown, of Liverpool, for improvements in spanners applicable for nuts, bolt heads, braces, and like devices. Dated August 15, 1882.
- „ 3900. W. J. Henry, of Chancery Lane, London, for improvements in smoke-consuming grates, and in means connected therewith for ventilating apartments. Dated August 15, 1882.
- „ 3952. J. F. C. Norman, of 17, Portsea Place, West London, and A. H. P. S. Wortley, of Rosslyn House, Grove End-road, North-West-London, for improvements in gas stoves. Dated August 18, 1882.
- „ 3960. Michael Mary Brophy, of the Holborn Engineering Works, London, for improvements in and connected with gas apparatus for heating water or for generating steam, parts of which invention relate to cooking, grilling, or other stoves or ovens for various purposes, and also in gas burners and regulators applicable to the same. Dated August 18, 1882.
- „ 4006. J. Stassen, junior, of Euston-road, London, Bicycle and Tricycle Manufacturer, for improvements in velocipedes. Dated August 21, 1882.
- „ 4078. E. Barnes, of Anglesea-street, Mile End, London, Joiner, for improvements in spring hinges for swing doors. Dated August 25, 1882.
- „ 4090. W. Thornburn, of Boroughbridge, Yorkshire, for improvements in means and appliances for heating and warming. Dated August 26, 1882.
- „ 4096. W. R. Lake—a communication from E. Z. I. Téterger, of Paris, for improvements in gas burners. Dated August 26, 1882.
- „ 4157. W. J. Lloyd, of the firm of Lloyd Brothers, of Harborne, Staffordshire, Manufacturers, for improvements in tricycles and other velocipedes. Dated August 31, 1882.
- „ 4163. A. M. Clark—a communication from W. Maynard, of New York, United States, Chemist, for improvements in filters. Dated August 31, 1882.

- No. 4291. J. J. Shedlock, of Barnet, Hertfordshire, for improvements in gas burners. Dated September 9, 1882.
- „ 4340. S. Lowe, Machinist, and J. W. Lamb, Manufacturer, both of Nottingham, for improvements in knitting machinery. Dated September 12, 1882.
- „ 4341. J. W. Lamb, Manufacturer, and E. Attenborough, Machine Maker, both of Nottingham, for improvements in knitting machinery. Dated September 12, 1882.
- „ 4356. G. H. Nash, of Birmingham, for improvements in globe holders for gas and other burners or lamps. Dated September 13, 1882.
- „ 4416. A. M. Clark—a communication from V. Popp, of Paris, for improvements in increasing the illuminating power of gases, and in burners and regulating apparatus for use in connection therewith. Dated September 16, 1882.
- „ 4473. C. Clarke, of Westmoreland, Jamaica, and at present of Fleet-street, London, for improvements in bicycles and tricycles, part of which improvements are also applicable to other apparatus wherein motive-power is to be obtained and applied. Dated September 20, 1882.
- „ 4520. I. Nasch, of Whitechapel-road, London, Engineer, for an improved button-hole attachment for sewing machines. Dated September 22, 1882.
- „ 4594. W. L. Wise—a communication from F. Bernard, of Paris, for improvements in lamps, particularly applicable to lamps of the kind used in illuminations. Dated September 27, 1882.
- „ 4962. J. N. Sperry, of Brixton-hill, London, for improvements in cocks or valves. Dated October 18, 1882.
- „ 5103. G. H. C. Hughes, of St. Stephen's-street Works, Birmingham, Manufacturer, for improvements in or relating to velocipedes, perambulators, and invalid chairs, part of which may be applied to other vehicles. Dated October 26, 1882.
- „ 5125. A. J. Boulton—a communication from "The Elliott Pneumatic Door Check Company, of Boston, Massachusetts, United States, for improvements in door checks or governors. Dated October 27, 1882.
- „ 5468. W. J. Fraser, of 98, Commercial-road East, London, Engineer, for improvements in and applicable to wheels of carriages, velocipedes, and other vehicles. Dated November 17, 1882.
- „ 5703. M. Gandy, of 5, Apsdell-street, Liverpool, Manufacturer of Cotton Belting, for improvements in and relating to sewing machines. Dated November 30, 1882.
- No. 124. G. E. Vaughan—a communication from J. Covillion, of Paris, for improvements in the construction of screens for domestic fire-places. Dated January 10, 1880.
- „ 127. D. Ward and T. Birkhead, both of Sheffield, for improvements in shears. Dated January 12, 1880.
- „ 134. J. W. Peirce, of Cochrane-street, St. John's Wood, London, for improvements in velocipedes. Dated January 12, 1880.
- „ 148. J. W. Spear, of North-buildings, London, Manufacturer, for improvements in candle holders or save-alls. Dated January 13, 1880.
- „ 166. J. H. Bartlet, of Ipswich, Suffolk, Doctor of Medicine, for improvements in fire-grates adapted for dwelling and bed-rooms. Dated January 14, 1880.
- „ 171. W. R. Lake—a communication from M. G. Wilder, of Brooklyn, New York, United States, Machinist, for an improved apparatus for regulating or controlling the flow of gas or other fluids. Dated January 14, 1880.
- „ 179. C. D. Yates, of Brunswick House, Margate, for an improved apparatus for heating water, and an improved atmospheric burner in connection therewith. Dated January 15, 1880.
- „ 186. G. F. Redfern—a communication from E. Domereq, of 10, Rue de la Fidélité, Paris, for improvements in spring mattresses and bedsteads. Dated January 15, 1880.
- „ 213. G. Grant, in the employment of Messieurs J. and A. Law, of Glasgow, Ironfounders, for improvements in or connected with water-closets and lavatories, and in water supply apparatus therefor, and applicable otherwise. Dated January 17, 1880.
- „ 236. C. D. Abel—a communication from P. Lehman, of Berlin, for improvements in holders or save-alls for candles. Dated January 19, 1880.
- „ 253. A. Gray, of Edinburgh, Plumber, for improvements in or connected with water-closets. Dated January 21, 1880.
- „ 260. H. Wallis, of Brighton, Pianoforte tuner, for new or improved means of securing lamps in scones or sockets. Dated January 21, 1880.
- „ 273. P. E. Chappuis, of Fleet-street, London, Manufacturer of Reflectors, for improvements in day-light reflectors. Dated January 21, 1880.
- „ 282. W. T. Sugg, of Vincent-street, Westminster, London, Gas Engineer, for improvements in the construction of gas burners. Dated January 22, 1880.
- „ 285. E. Robinson, of Columbus, Ohio, United States, for improvements in balanced slide valves. Dated January 22, 1880.
- „ 286. J. G. Gray, of Sudbury, Suffolk, for improvements in or applicable to the grates, chairs, or baskets of fire-places. Dated January 22, 1880.
- „ 289. W. R. Lake—a communication from C. Westphal, of Frankfurt-on-the-Maine, Germany, Engineer, for improvements in apparatus for automatically lighting and extinguishing gas. Dated January 22, 1880.
- „ 293. G. Smith, of the firm of G. Smith and Company, of Suu Foundry, Glasgow, for improvements in the construction of baths. Dated January 23, 1880.
- „ 308. W. Hammond, of Lewes, Sussex, for an improved apparatus for sifting cinders. Dated January 23, 1880.
- „ 326. G. D. Peters, of Bunhill-row, London, for improvements in ball and socket apparatus, chiefly designed for use as furniture castors, and in means for the manufacture of glass balls for the same and other purposes. Dated January 24, 1880.
- „ 332. J. R. Fielding, of 49, George-street South, and B.

PATENTS WHICH HAVE BECOME VOID:—

- No. 62. A. M. Silber, of 49, Whitecross-street, London, for improvements in lamp or gas stoves. Dated January 7, 1880.
- „ 95. H. J. Haddan—a communication from J. B. Williams and N. G. Williams, both of Bellows Falls, Vermont, United States, for improvements in churns. Dated January 9, 1882.
- „ 108. W. P. Thompson—partly a communication from Monsieur Pincemin, of 5, Rue de Chateaudun, Paris, for improvements in and relating to fittings for exhibiting articles in shop windows and other places. Dated January 9, 1880.
- „ 116. W. Pursall, of Harborne, Staffordshire, Gentleman, for improvements in thimbles as employed for sewing, and a novel arrangement of parts applied to the same. Dated January 10, 1880.

- Butterworth, of 6, Casson-gate, both in Rochdale, Lancashire, for improvements in or applicable to gas burners or lights. Dated January 26, 1880.
- No. 336. J. F. Hoyne, of Kingstown, Dublin, for an improved construction of wash boiler fountain. Dated January 26, 1880.
- „ 354. J. Watterworth, of Hull, Yorkshire. Perambulator Maker, for improvements in perambulators. Dated January 27, 1880.
- „ 355. H. Salsbury, of the firm of "J. E. Salsbury," of 125 and 126, Long Acre, London, Carriage Lamp Manufacturer, for improvements in or applicable to hanging lamps for bicycles and such like purposes. Dated January 27, 1880.
- „ 383. A. M. Clark—a communication from H. L. Russell, of Bloomington, Illinois, United States, for improvements in registering locks, and keys for use therewith. Dated January 28, 1880.
- „ 398. W. Riley, of Keighley, Yorkshire, Mechanic, and S. C. Taylor, of Morecambe, Lancashire, Joiner, for improvements in the method of and apparatus for opening and securing window sashes. Dated January 29, 1880.
- „ 427. S. Simmons, of 86, St. Augustine-road, Camden-square, London, for improvements in machinery for beating carpets. Dated January 30, 1880.
- „ 432. E. P. Brouardel, of Paris, Merchant, for improvements in gas pressure registers. Dated January 31, 1880.
- „ 437. A. H. Williams, of New Bond-street, London, Wine Merchant, for improvements in taps or cocks. Dated January 31, 1880.
- „ 457. J. C. Mewburn—a communication from E. Brouardel, of Paris, for improvements in or applicable to gas lamps and burners. Dated February 2, 1880.
- „ 461. J. Hiscocks, of Swallowcliffe, near Salisbury, Wiltshire, Miller, for improvements in self-acting apparatus to be employed in ventilating hot-houses, conservatories, and other buildings. Dated February 2, 1880.
- „ 476. J. H. Gillett, of Wolverhampton, Gentleman, for a new and improved skate. Dated February 3, 1880.
- „ 140. J. J. Wilson, of Edinburgh, Hydraulic Engineer, for an improved arrangement or construction of apparatus or fittings to be used in supplying and discharging hot and cold water and other liquids, part or parts of which are applicable for other purposes. Dated January 13, 1876.
- „ 180. W. Johnson and J. Phillips, both of Ripley, Yorkshire, for improvements in mounting the wheels of traction engines and velocipedes. Dated January 17, 1876.
- „ 385. W. R. Lake—a communication from T. J. Sloan, of New York, United States, Mechanical Engineer, for improvements in wood screws and screwdrivers, and in machinery for making such screws. Dated January 31, 1876.

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BRONZING FOR BRASS.—The articles, which must be freed from grease and polished, are first immersed for half a minute in a cold solution of 10 grammes of potassium permanganate, 60 grammes of sulphate of iron (ferrous), and 5 grammes of hydrochloric acid in 1 litre of water. They are then washed off and dried in fine, soft sawdust.

THE NEW MINT.

THIS establishment is again in working order, and it is satisfactory to know that we may now consider ourselves to possess at least one of the most efficient mints in existence, if not in all respects the best. The remodelling of the entire place has been effected within about eleven months, during which the Bank of England has managed to get along with the stock of coined gold it had on hand. It was rather a curious coincidence that just as the question as to the removal or alteration of the Mint was ripe for decision the Bank of England should have happened to find itself with quite an abnormal stock of sovereigns and half sovereigns in hand. The position of the Bank in this respect is said to have been quite unprecedented, and hence it was found practicable to suspend minting operations while the institution was being entirely reconstructed. How the deputy-master of the Mint has got over one little difficulty in his way we are not informed. By the 8th section of the Coining Act any person has the right to take bullion to the Mint and have it coined, free of cost. We are not aware that this section was suspended, and if, during the past year, anyone possessing bullion had thought proper to assert his right, it might, we suppose, have involved the Mint authorities in some difficulty. Practically, however, it is through the Bank of England that all our coinage finds its way into circulation, and probably nobody has hit on this legal way of making themselves troublesome during the past year.

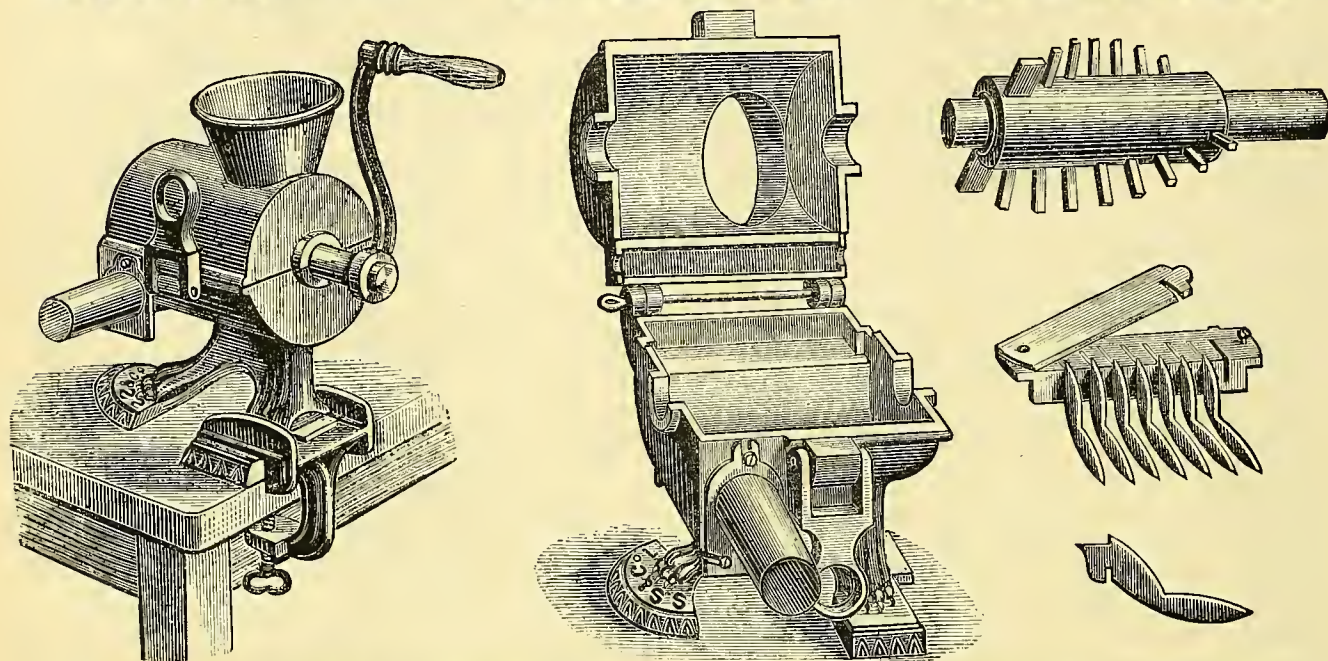
The work was begun in February last and was practically completed by the 8th of December. The old place has entirely lost that antiquated, old world look which was so noticeable formerly, and the establishment is fully equal to the utmost possible demand that may be made upon it. A radical defect in the old place was a want of motive power. The engines were not equal to the demands it was often desirable to make upon them. That has been thoroughly remedied. Messrs. Maudslay, Sons, and Field, the well-known engineers of Lambeth, have set up three splendid engines, each of 250 horse power, two of which will be in ordinary use, the third being a reserve in case of anything going wrong with the others. Formerly there were four engines, with an aggregate horse-power of a little over 100, and one of these old engines—a 20 horse-power—has been retained. The new engines are very fine. They have been set up under the immediate superintendence of the principal partner in the firm we have mentioned, who seems to have brought all the resources of the modern engineer to bear upon the problem of producing engines peculiarly adapted for minting purposes. They are compound inverted engines, each having one high-pressure and one low-pressure cylinder, the two pistons having one piston rod. They are regulated by a high-speed governor, which controls admissions of steam by a Corliss valve gear on the high-pressure cylinder. The low-pressure cylinder receives its steam by means of ordinary double-ported slide valves. So admirably are these engines governed that although the demands upon them may vary from minute to minute as much as from 70 or 80 per cent., there is hardly the slightest variation in the steady speed of their working.

This increase and improvement of engine power is, of course, of fundamental importance, but those who are familiar with the old Mint will perhaps be most impressed by the increase and change of machinery in several parts of the establishment. The increase amounts, in fact, to just the doubling of the Mint, wherever the establishment was found to come short of the demands made upon it. The silver melting house remains as it was, and so apparently does the gold melting house, though the latter has been enlarged by taking into it what was formerly the "grinding-room," which has been removed to the site of the old 30 or 40 horse-power engines. The old rolling-room, in which visitors have been wont to be so impressed by the gleaming bands of silver and gold in process of being rolled down to the thickness necessary for coins, remains pretty much as it was; but another entirely new room has been built, and six new rolling mills have been set up, so that this department of the plant has been just doubled. That the rolling should henceforth be done in two different parts of the place constitutes one of those unavoidable

defects incidental to the creation of a new Mint out of old premises. From the rolling-mills the fillets of metal are carried to the "drag-room," and passed through a very powerful machine, invented by Sir John Barton, a former controller of the Mint, which has always done its work perfectly, and been more than equal to the demands made upon it. No alteration or addition has been made in this department, therefore. The cutting out of the coins—or rather the "blanks" to be afterwards converted into coins—used at one time to be accomplished by a machine which was, we suppose, the best of its kind at the beginning of the century, but which has of late been practically superseded. It was a very lumbering, old-fashioned affair, worked by a combination of steam and pneumatic pressure, and used to make more rattle and uproar over its work than almost all the other machines together. That has now been swept away, and the blanks are cut out by a number of the most modern machines of the day. They have next to be annealed—softened, that is to say—by being exposed to great heat in plumbago crucibles, and then plunged into cold water. A new furnace has been put up for this process, embodying some peculiar features designed to afford great uniformity of heat. The "marking"—the formation of the raised rim round each coin—is a process by itself, and is performed by wonderful little machines that have been contrived at the Mint. Nothing could be suggested as an improvement on this mechanism for efficiency and speed. It will produce the most accurately formed rim on "blanks" at the rate of 600 a minute. Cutting and marking are carried on now in a room newly erected on the site of the old cutting machinery, and lying between the old and the new rolling rooms. The coining—the conversion of "blanks" into coin of the realm—is now carried on in a fine new room, and by machinery than which it is difficult to conceive anything more perfect. The blanks are merely put into a spout, and the machine takes them one by one, thrusts them into position, deals each one a blow which embosses it on both sides, and "mills" the edge, and then pushes it off into a spout to make room for the next. The old machines were very wonderful in their way, but they were behind the time, and were clumsy and noisy and rather slow. The new machinery is in each of these respects a great improvement. Mr. Robert A. Hill, the superintendent of the operative department, upon whom an immense amount of responsibility in connection with this work has devolved, has made an improvement in these machines by shortening a lever, the vibration of which limited their speed, and they will now turn out 110 beautifully finished coins a minute, without any human intervention whatever, after the blanks have been placed in position. There are 14 of these machines set up by Messrs. Ralph Heaton and Sons, of Birmingham. Mr. Freemantle, who has now for many years so ably presided over this establishment, under circumstances which must often have been very trying, will henceforth be easily able to meet the utmost demands that can be made upon him, and he and his colleagues will have the pleasure of knowing that they are on a footing of equality with the best mints of the day. The task they have completed must have been very anxious and arduous, and Mr. Hill, whose position as the practical man of the establishment has given him a particularly onerous share of the work, may be congratulated on having carried it through in a thoroughly masterly manner.

THE CUTLERS' COMPANY.—The Court of this Company at their last meeting voted £10 10s. to each of the following hospitals and charitable institutions: Royal Female Philanthropic Society, Protestant Blind Pension Society, Royal Free Hospital, Cancer Hospital, the Children's Home, Hospital for Consumption, Working Lads' Institute, White-chapel, Provident Surgical Appliance Society, St. Mary Magdalene's Home, Westminster Hospital, Dr. Barnardo's Village Homes, Surgical Aid Society, Great Northern Hospital, East London Hospital for Children and Dispensary for Women, Charing Cross Hospital, Royal Medical Benevolent College, Epsom, Railway Servants' Orphanage, London Bible and Domestic Female Mission, Royal Hospital for Diseases of the Chest, National Refuges for Homeless and Destitute Children, West London Hospital, Dr. Barnardo's Home for Destitute Children, City of London Truss Society, Royal Albert Orphan Asylum, Dental Hospital, and the poor of St. Botolph.

THE PATENT 'VICTORIA' MINCING MACHINE.



The knives are held in position by dropping them separately into slots cut in a moveable knife bar, and are efficiently prevented from moving by means of a swivelling top plate, which covers the slots, thus preventing any substance getting into them. The knives are interchangeable, and, having two separate blades, they mince the meat in one half the time and twice as fine as the ordinary mincing machines. The revolving cutters are square steel teeth, or pins, with sharp edges fitted into a solid roller. All metals injurious to the health are avoided—no lead, tin, or zinc being used. The machines are of iron, enamelled and of best finish, and fasten to the table by means of a clamp, the knives being of the best cast steel.

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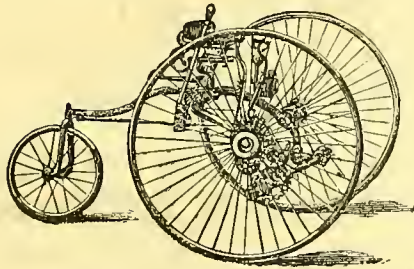
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Oil Cans, Sarudene's Oil in Bottles, Machine Bands.
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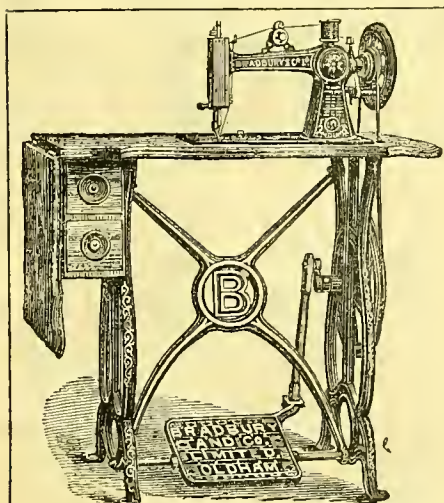
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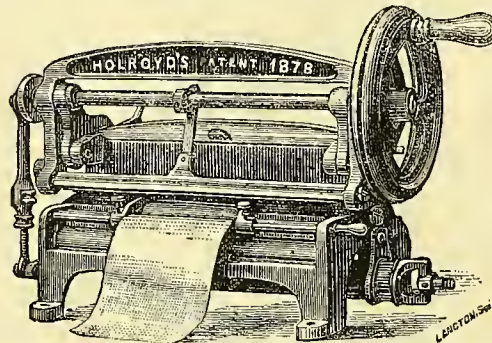
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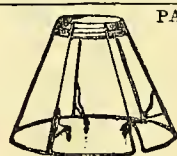


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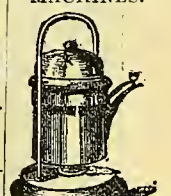
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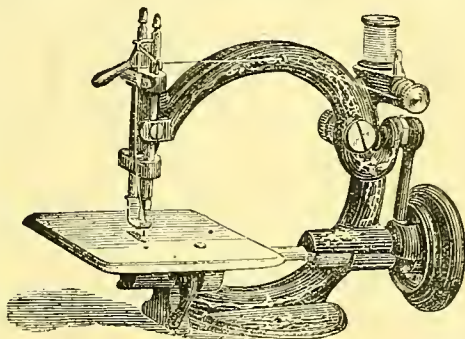
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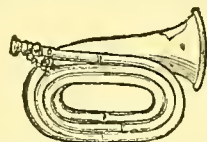
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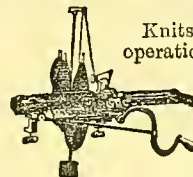
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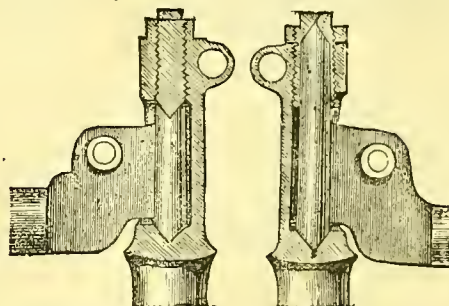
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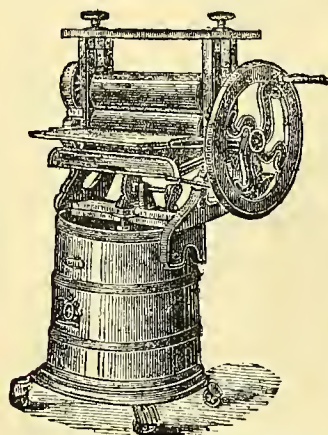
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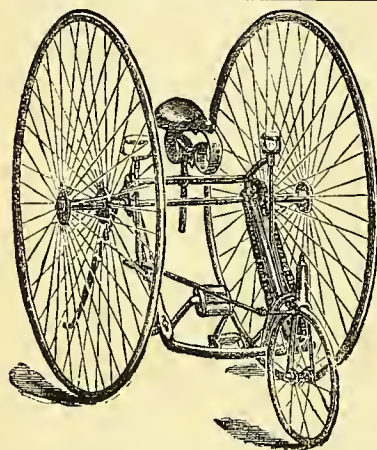
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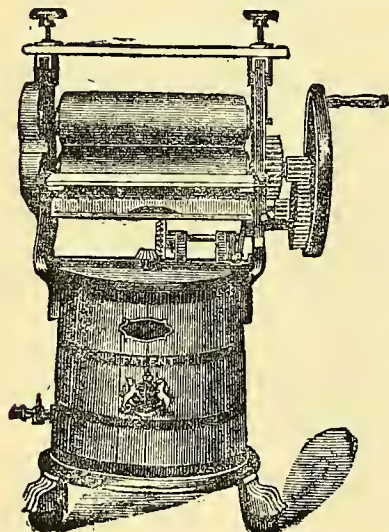
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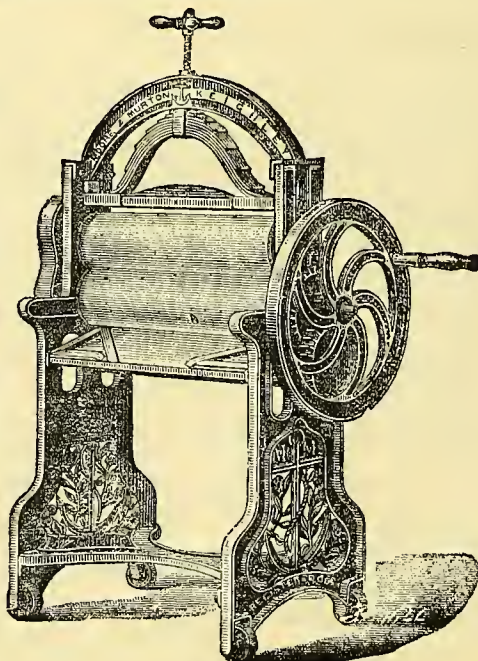
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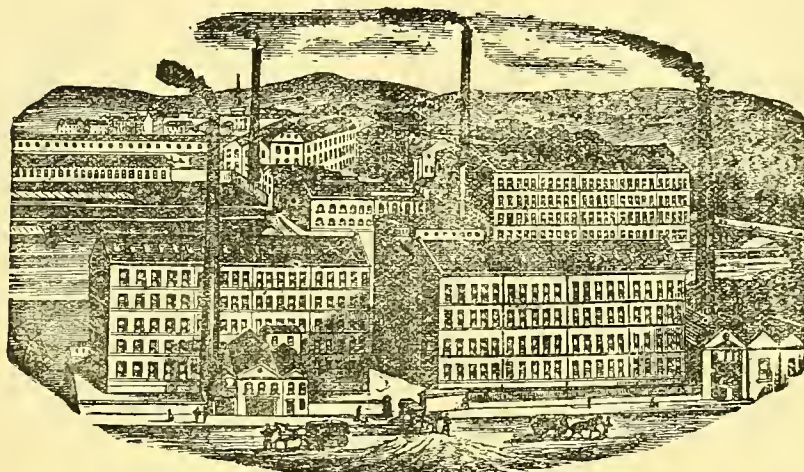
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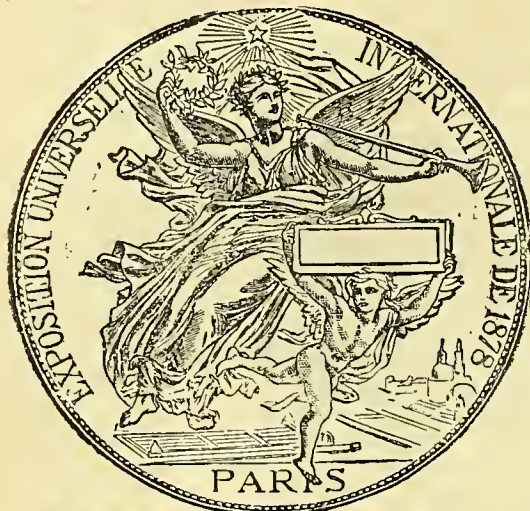
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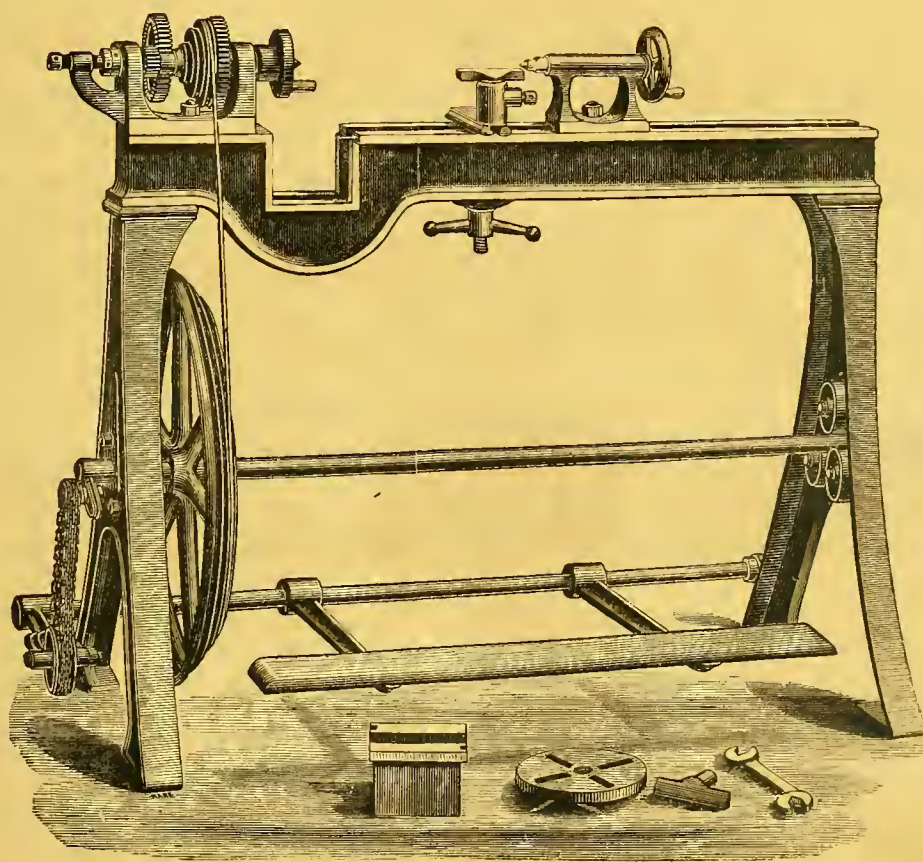
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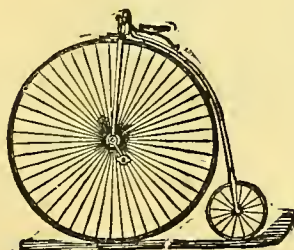
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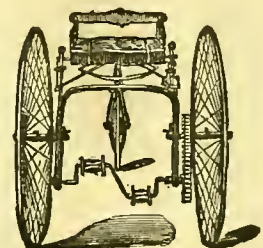


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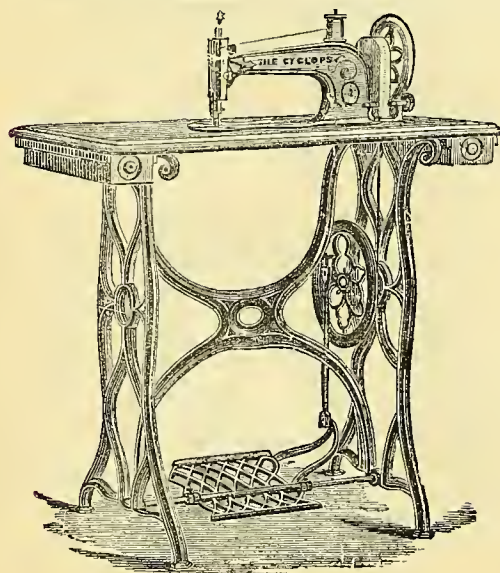
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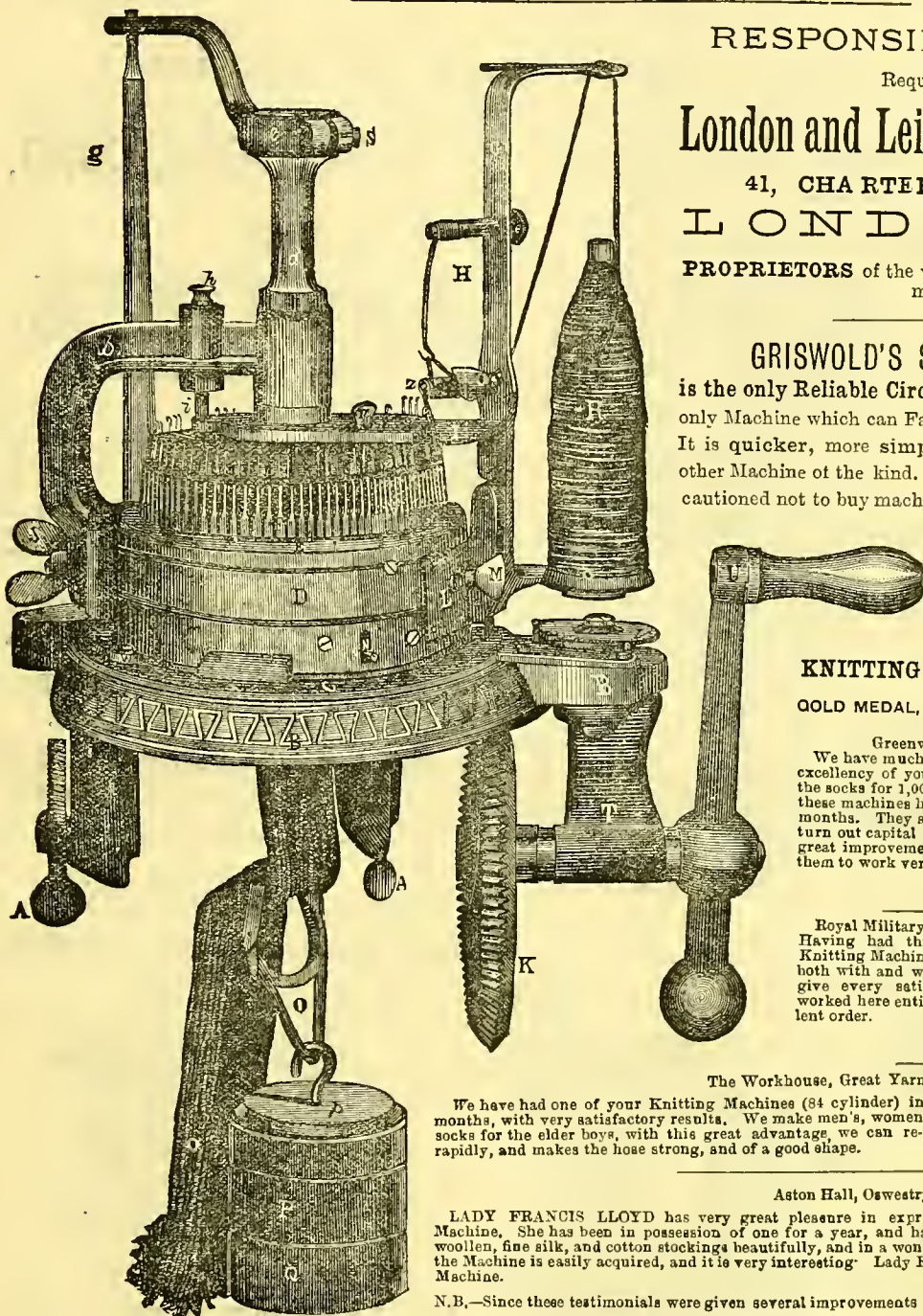
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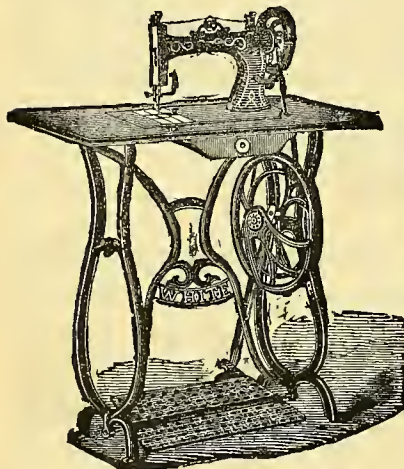
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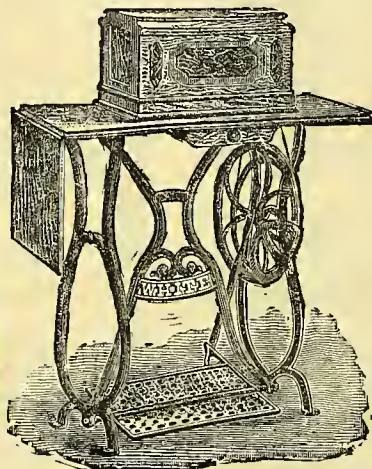
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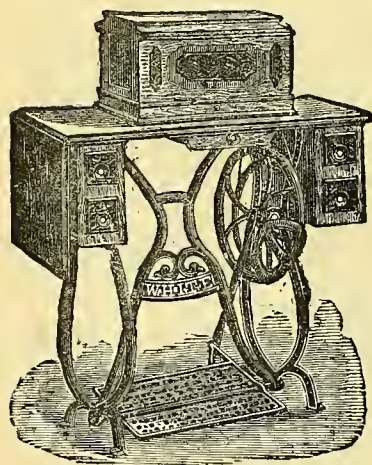
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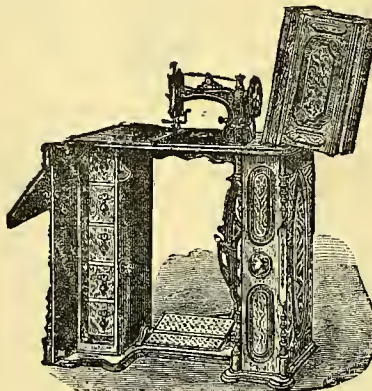
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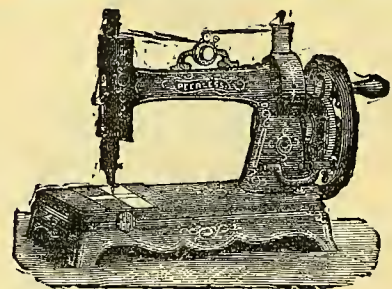
ATTRIBUTES.

It is the Finest Finished and Best
Made Machine in the World.

It is the Easiest-Selling and Best-
Satisfying Machine ever Produced.

The "PEERLESS"

Hand Shuttle Sewing Machines.



Price £4 0 0

LIBERAL TERMS TO RESPONSIBLE DEALERS
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All Sewing Machine Agents, Dealers, and Operators are invited to call and inspect this—the latest Improved
and Best Silent Lock-Stitch Shuttle Sewing Machine—or send for Pamphlets, Circulars, &c., to

WHITE SEWING MACHINE COMPANY,

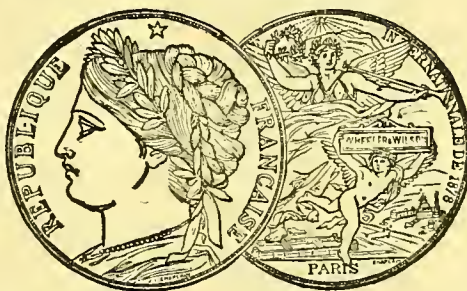
19, Queen Victoria Street, London, E.C.

The only GOLD MEDAL for Boot and Shoe Machinery awarded at the Paris Exposition was for the Machinery of the

ENGLISH AND AMERICAN SHOE & GENERAL MACHINERY COMPANY, LIMITED.

A Great Variety of
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EDGE TRIMMING



FOR
Heel Nailing & Trimming
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HEEL BLOCKING, RAND AND WELT CUTTING,

RAND TURNING,

Self-Feeding Eyelet Machines

Self-Feeding Punches, Double and Single Fitting.

MACHINES FOR PUTTING IN ELASTICS,
STRAIGHT AND CIRCULAR BEADERS.

And a great variety of other Machinery and Patented Tools.

Many of our Machines may be seen in motion at the Company's Warehouse,
No. 1, WORSHIP STREET, FINSBURY, E.C.

Raw Hide Mallets and Hammers for Shoe Manufacturers and Machinists.

ROLLERS, PRESSES, KNIVES AND IRON OR WOOD LASTS.

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SEWING MACHINE MANUFACTORY,

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HANDWERK
MANUFACTURER
6 SING. MACH.
7 SING. MACH.
8 SING. MACH.
9 PATENT SING.
10 PATENT SING.
11 ELASTIQUE
E. GASTEL

11
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1. SINGER A. MACH. IN VERBODEN
2. SINGER A. MACH. IN VERBODEN
3. SINGER A. MACH. IN VERBODEN
4. SINGER A. MACH. IN VERBODEN
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10. SINGER A. MACH. IN VERBODEN
11. SINGER A. MACH. IN VERBODEN

DÜRKOPP & Co., Bielefeld.

FOR PARTICULARS APPLY TO

DÜRKOPP & Co.,
BIELEFELD.

THE "UNIVERSAL" KNITTING MACHINE.

BY HER MAJESTY'S

ROYAL LETTERS PATENT.

ANY PERSON

With an ordinary amount of knowledge can learn to work this Machine in **THREE LESSONS**, and can make **A GOOD INCOME** by Knitting Hosiery upon it, as from $1\frac{1}{2}$ to $2\frac{1}{2}$ dozen pairs per day can be made.

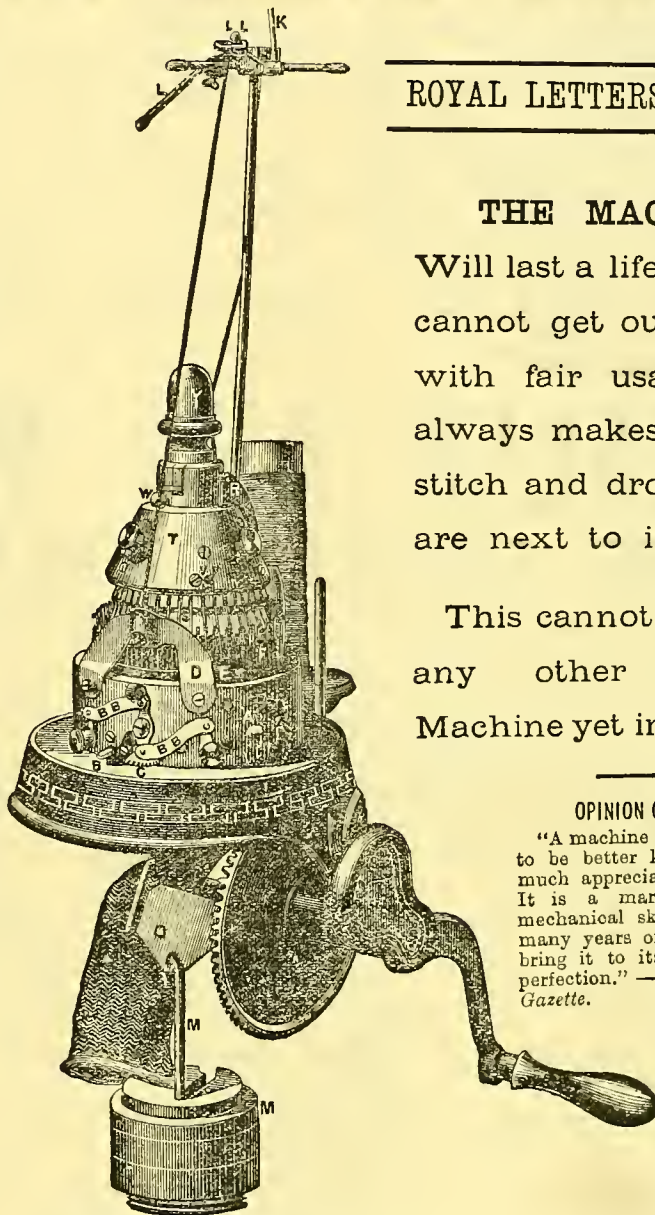
THE MACHINE

Will last a life time, and cannot get out of order with fair usage, as it always makes a perfect stitch and drop stitches are next to impossible.

This cannot be said of any other Knitting Machine yet invented.

OPINION OF THE PRESS.

"A machine which requires only to be better known, to become much appreciated, is the above. It is a marvellous piece of mechanical skill, and has taken many years of patient study to bring it to its present state of perfection." — *Sewing Machine Gazette*.



THE "UNIVERSAL"

Far surpasses, in every way, all other known Machines, and cannot fail, by its extraordinary merits, to recommend itself to every household and to hosiery manufacturers. It is so simple to learn and work that a child can become proficient in a few lessons and its wonderful speed is such that a full-sized sock can be made in ten minutes, plain or Ribbed. The public are invited to call and see this statement verified.

Price of Machine, complete with appliances, £9 9s. Od.

Any person can make this Machine pay for itself in a few weeks, and full particulars how to proceed will be given on personal application to the

UNIVERSAL KNITTING MACHINE COMPANY, LEICESTER,

OR OF THEIR AGENT

CHARLES GIMSON, Dashwood House, 9, New Broad Street, LONDON, E.C.

Mr. GIMSON is manufacturing by this machine with considerable success, and will forward terms, Samples, &c. on application to the Trade (Sewing Machine Dealers should keep stock) and thus enable them to show actual work done by the machine.



THE
ONLY
"GRAND
PRIZE"
FOR
SEWING
MACHINES
AT THE LATE
PARIS EXHIBITION.



WHEELER AND WILSON'S NEW SEWING MACHINES.

As a proof of the extraordinary favour these Machines have won for themselves it may be mentioned :—

The Company have recently received many large Orders, among others, for 400, 200, and several 100's and 50's of these Machines respectively, and from manufacturers of Clothing, Corsets, &c., &c., and have permission to give the names and addresses of these Firms when necessary.

The New No. 8.—The New Family and Light Manufacturing Machine. Strongly recommended. Price £7 10s.

The New No. 6.—A Powerful Machine, capable of doing all grades of work, from the finest to the thickest, in the best possible manner, including all the various kinds of Leather work. „ £8 10s.

Also No. 6 Cylinder Machine for special classes of Boot work ... „ £10.

The New No. 7.—Similar to the No. 6 Machine, but especially suitable for Corset work, heavy Tailoring, Upholstery, &c. ... „ £8 10s.

The New No. 10.—(Just out)—This Machine is of large dimensions, having more room under the arm than any other intended for similar purposes. Notwithstanding its large size, it is so constructed as to run at as high a rate of speed as the lightest Lock-stitch Machine. It is designed on a new principle, has neither cogs nor shuttle, and is not liable to get out of order ... „ £9.

The Well-known Original Family and Light Manufacturing Machines—

Nos. 1 & 2 ... Price £6 10s., £7 10s.

The New No. 8 Hand Machine, (*specially recommended*) is the best and most perfect Hand Machine yet produced. Price, with COVER, complete ... „ £5 5s.

5 PER CENT. OFF FOR CASH.

MACHINES SUPPLIED ON THE HIRE SYSTEM

EVERY MACHINE MADE BY WHEELER AND WILSON HAS THEIR TRADE MARK AFFIXED.

Illustrated Catalogues and other particulars, Post Free.

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Newcastle, 71, West Grainger Street.
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Sheffield, 15, Castle Street.
York, 21, Spurrigergate.

And Offices or Agents in all important Towns.

BAER & REMPEL'S

New "Rotary Hook" Sewing Machine.

(W. & W. PRINCIPLE, NEW AND OLD STYLE.)

THE NEW STRAIGHT NEEDLE MACHINE "PHENIX" (Nos. 8 & 10).

1. **PHENIX La A.** (No. 8). For family use and light manufacturing purposes.
 2. **PHENIX La B.** (No. 10). Heavy manufacturing machine for tailoring, upholstering and heavy corset work.
 3. **PHENIX La C.** New high arm machine, medium size, having mechanical movements similar to the No. 10 machine, for family use and manufacturing purposes.
 4. **PHENIX HAND MACHINE.** On iron or wooden base.
- La SILENCIEUSE, Curved Needle Machine** with improved feed.

Our PHENIX machines are provided with a loose wheel for bobbin winding, the bobbin is very large and capable of holding more thread than any other family machine. The machines are absolutely noiseless and light running.

PRICE LISTS AND FULL PARTICULARS ON APPLICATION.

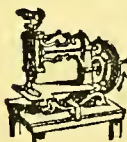
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LONDON, E.C.

BAER & REMPEL,
BIELEFELD, GERMANY,
Sewing Machine Manufacturers,
(ESTABLISHED 1865).

RAYMOND'S

CANADIAN SEWING MACHINES.

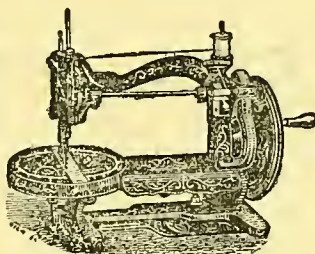


£2 2s. Complete.

THIS Machine has obtained the highest reputation and an enormous sale, both under its true name ("Raymond's"), and also as the "Weir 55s. Machine," &c. — (See caution below). It is durable, rapid, exceedingly simple, neat, not liable to get out of order, and warranted to sew from the finest muslin to the heaviest material.

CAUTION.—JAMES G. WEIR, who, for about eight years obtained these genuine Machines, is no longer supplied with them by the Inventor and Manufacturer, Mr. CHARLES RAYMOND.

BEWARE OF ALL COUNTERFEITS.



£4 4s. Complete.

RAYMOND'S PATENT "Household" Lockstitch Machine has been designed expressly for family use. It is exceedingly simple to learn and to manage, and warranted to sew every kind of family and household work. Is fitted with the latest improvements — loose wheel, and (Registered) Automatic Bobbin Winder.

Testimonials, Prospectuses, Samples of Work, and all particulars free on application.

ALSO

Raymond's No. 1 and 2 TREADLE MACHINES for Families, Dressmakers, and Manufacturers

AGENTS WANTED.

CHIEF DEPÔT FOR EUROPE AND EXPORT:

11, MOUNT PLEASANT, LIVERPOOL.
P. FRANK, AGENT. ESTABLISHED 1863.

THE LARGEST

THE LARGEST SEWING

THE LARGEST SEWING MACHINE

SEWING MACHINE FITTINGS

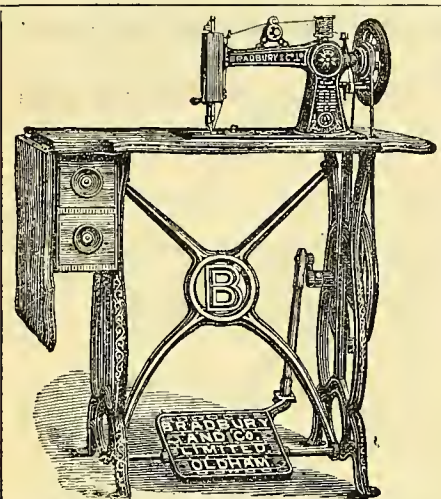
Machine "Belt"
Manufacturers.

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Warehouse.

Bishop's Cluster Company, Limited, 25, Hamsell St., London, E.C.



No. 8—ROTARY SHUTTLE MACHINE, THE
QUICKEST LOCKSTITCH IN THE WORLD,
22,000 STITCHES PER MINUTE.

BRADBURY & CO., LIMITED, SEWING MACHINE MANUFACTURERS, WELLINGTON WORKS, OLDHAM.

BRADBURY & CO., LIMITED, are not only the oldest and largest European Makers, but they also make the greatest variety of Machines for all general purposes; they are thus able to supply any class of customers with Machines suitable for their requirements, and are not compelled to recommend *one system only* for all descriptions of work. Their Machines surpass all others in

**SIMPLICITY, RAPIDITY,
DURABILITY AND FINISH.**

They have been awarded

MORE GRAND PRIZE MEDALS
than all the other

EUROPEAN MANUFACTURERS COMBINED.

Depots in all the principal Towns of the Country.

LIBERAL TERMS TO SHIPPERS AND MERCHANTS.

GOLD MEDAL—PARIS, 1872.
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GOLD MEDAL—ADELAIDE, 1881.
GOLD MEDAL—
PERTH, W. AUSTRALIA, 1882.
AND
TEN FIRST PRIZES
AT LOCAL EXHIBITIONS
DURING 1882.

BUTTON HOLE MACHINE.

The New American No. 3 Button Hole Machine for Boot Manufacturers is unrivalled
From 3 to 10 Dozen Button Holes per Hour can be made.

PRICE £12 10s.

Samples of Work sent Post Free. Thousands of these Machines have been sold.
The demand for the past month exceeded our expectations, and till our Shipments overtake orders we fill the same in rotation within 14 days.

HEAD OFFICE, 8, Gallowtree Gate, LEICESTER.

GRISCOM'S

**Electro-Motor & 'Automatic'
BATTERY.**

Complete Apparatus for Driving any Sewing Machine,
Dental Lathe, &c., £6 5 0.

Packed and Delivered in London.

For Trade Terms, Patents, Agencies, &c., apply to

THE ELECTRO DYNAMIC CO.,

2, SCOTT'S YARD, BUSH LANE,
CANNON STREET, LONDON, E.C.

First Prize Medals Paris and Philadelphia, 1881
and Crystal Palace, 1882.



RECOLLECTIONS OF ELIAS HOWE.

THE following interesting account of Elias Howe appears in our American contemporary, *The Sewing Machine Gazette*.

"Elias Howe," said a gentleman to us the other day, with whom we were speaking of the early days of sewing machine inventors, "was a grand old man, of massive build, and possessed of a heart that might be called even larger than his frame. I worked at the bench in the Howe Company's factory in Bridgeport, Conn., in 18—, and as the old gentleman was a great 'tinker' he was constantly about the shops. He had fitted up a corner for himself in our room where, with a vice, some files and one or two other tools, he would tinker away at some idea, giving it shape in metal by the aid of his simple implements. When he had a fit of this kind on him he would come to the factory at 7 o'clock with the mechanics, quit at noon time for dinner, as they did, and re-appear at 1 o'clock, remaining until the close of work. There he would file and drill and hammer and bend, holding up the result of his labour every now and then in his fingers, and scanning it critically in the strong light that came through the window in front of him. After many days' work he would apparently be dissatisfied, and with a last glance at the piece of metal, would throw it under the bench among the scraps. Then he would go off and sometimes be gone several days, sometimes weeks or months. When he returned he walked in in the same quiet way and resumed his files as if he had only left them the day before. This corner of his was immediately next to my bench, and in coming and going he never failed to greet me with a courteous salutation. I used to love to see the old man, his noble figure, his long flowing hair, his strong features and benevolent aspect making him appear almost godlike to my enthusiastic young mind as he walked up the long room to his corner. I had observed on several occasions as he filed or hammered, that he would sometimes pause in his work, lean with his hands folded upon the vice and gaze abstractedly out of the window. After remaining in this position for several minutes I would notice the tears rolling slowly down his cheeks, drop after drop they would follow each other, and fall silently on the dust begrimed bench beneath. Young and impressionable as I was at the time, I could not witness this evidence of a secret sorrow without being somewhat sympathetically affected, and many a vague theory did I form as to the cause of the old inventor's tears. He was so wrapped up in his mechanical conceptions that I used to think it was perhaps a disappointment in working out to a practical conclusion some pet theory or newly thought of device, which grieved him; but for a long time I never dared to intrude upon his trouble.

"At last, one morning, after he had been absent from his vice longer than usual—months indeed, if I recollect rightly—he appeared once more among us, and commenced again to handle the tools. Although very careful not to let him see me watching him, I observed that he was particularly absent-minded, and frequently arrested himself in his work, as if some idea had struck him which he was endeavouring to follow up in his mind. This had occurred several times during the forenoon, and at last he laid down the file he had been using, and leaning his hands on the vice in the old way, gazed out of the window. Then the

tears commenced to flow again—at first in occasional drops, but slowly increasing in copiousness. Finally he actually sobbed, and the large manly chest was presently shaken with half-suppressed, choking, convulsive sighs. It was more than I could stand. I got up and approached him, laying my hand upon his arm.

"'Pardon me, Mr. Howe,'" I said, I have no intention of intruding, but the fact is I cannot witness your grief without being very much affected myself; may I, without impertinence, ask the cause of it, or can I be of any service in any way?' Turning around with kindly dignity he looked at me for a moment with an expression that indicated gratitude for my sympathy.

"'No, my lad,'" he began, then checking himself he continued, 'well, I will tell you.'

"It was just noon, and the whistle sounded as he spoke. He waited until the men had quitted the room, and the engine had ceased to run the shafting. Then, seated on an old scrap box, he told me the sorrow that weighed upon his heart.

"It appeared that his first wife, the good woman who had shared the privations of his early efforts to make a practical sewing machine when 'days were dark, and friends were few,' who had uncomplainingly borne all the hardships of dire poverty, and yet never flinched from encouraging him to pursue the great object of his life, although it brought them to the point almost of starvation, had died while he was yet far from the subsequent reward of his perseverance. She had been buried by public charity, so poor was Mr. Howe at the time. Afterwards, when his patents had been granted, his machines brought out and wealth and fame had been lavished upon him, he remembered the tried partner of his dark days, and sought to pay the only respect to her loved memory which remained in his power. He endeavoured to discover the remains, to have them interred in one of the cemeteries of Boston, under a monument that would testify to her devotion and his own regret and appreciation of her character. But, alas! years had elapsed since her decease. Changes had been made in the burial ground, and the bodies had been removed to another spot. There were no records to indicate the resting place of his wife's remains, and nothing was left for him to do but to engage men to dig, and disinter, and search for them at hap hazard. Thousands upon thousands of dollars he had spent in this object; regiments of men have been employed, but all in vain. Whenever another possible clue arose in his mind he started at once to follow it up with all the force that wealth could command. It was on missions of this kind that he absented himself from the factory. And the day he told me all this he had just returned from a search of months—all in vain. It was the last hope; thenceforth he knew he must give up the struggle, and the noble woman he loved so well must be for ever in a spot unknown to him.

"After telling me all this, with a sad detail I need not go over, he left the shop and did not return in the afternoon. It was the last time I ever saw the good hearted and sorrowful inventor, as I left the Company's employment shortly afterwards, but I shall never forget the sad picture I saw that day, of the stalwart old man leaning over his vice, his heart almost broken, and the tears coursing down his cheeks, because that in the days of his triumph and prosperity fate denied him the melancholy privilege of paying to the memory of his late faithful companion in adversity, the last mournful tribute of affection.

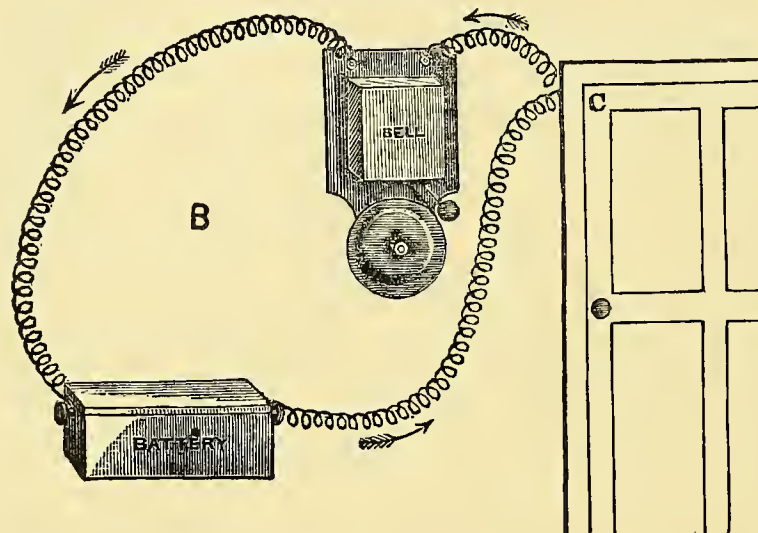
ELECTRIC BELLS.

What would Mr. Bill Sykes have thought of the electric bell? We know that when he endeavoured to "crack" that "crib" at Chertsey—at which poor little Oliver Twist unwillingly assisted—his accomplice, Mr. Toby Crackit, took the precaution to entice away the little house-dog. But we can hardly fancy an electric bell being so tractable, and are of opinion that it would require many tempting morsels of meat to abduct it from its guard over the house. The young canine gentleman might be enticed away, or might occasionally wander out on his own accord to see the wonders of the world abroad, but with the electric bell there can be no tampering or dereliction of duty. There are many other uses to which it can be adapted besides that of checking the exertions of gentlemen burglariously inclined. For household purposes it is much superior to either the wire or pneumatic bell, and as a fire alarm it is invaluable.

Electric bells can be applied to all the purposes that

system, it is as easy to ring a bell a mile or two distant as ten yards. Any number of pushes, pulls, &c., can be readily attached to same wires at a cost of extra pushes only, and after the first cost are no further expense or trouble beyond a few pence every two or three years to replenish the battery, which can be done by any one in a few minutes from instructions given. Many objections to electric bells have been made on account of the battery, which some imagine most erroneously to be a constant trouble and expense. Now this is not the case *at all*, it being exceedingly simple, durable, and inexpensive, lasting, when properly manufactured and connected, from four to five years, and requiring a little attention twice only during that term.

As the foundation is to the house, so is the battery to the electric bell system. These batteries may be placed in any part of the house. They are contained in neat little boxes, and will continue good in action for two years, when they may require a fresh supply of salt, occupying a few minutes only. Should new zincs be required after a



others can, and a great many purposes for which crank or air bells cannot be used. They may be rung any distance, length of wire immaterial; wires may be run round cornices, skirtings, under floors, underground or under plaster. As they are not pulled, consequently there is no strain, rattle of cranks, or breakage, and there is no necessity, when once properly put in, to tear up carpets, floors, paper, plaster, &c., to repair wires, to the great inconvenience of every housekeeper. They can be fixed in about one-third of the time or less required to fix other bells, without the least disfigurement to decorations and furniture, and wires may be had of various colours to match wall paper, &c. In the Pneumatic or air bell system, a bell can only be rung about forty yards, unless a specially constructed air bag is used. More than *two* pushes cannot well be applied to same indicator without running another pipe or additional apparatus. The air bags in pushes, pulls, indicators, &c., being made of India-rubber, are liable in the short space of two or three years to perish and require renewing. Now with the electric

period of two or more years, or during the time they are kept in good order, these may be renewed at a cost of 4d. to 6d. each, according to size. The communicator or push may be had in a great variety of forms, suitable for wainscoting, furniture, desks, &c., it being simply a means of making and breaking the electric current in connection with the bell. A pear-shaped push at the end of a thick flexible silk cord conductor is found invaluable for invalids or the infirm. It can be put under the pillow or left hanging as desired; therefore, it is unnecessary to rise to call the servant. The bell continues ringing so long as the finger is pressed on the little ivory stud.

To the landlord we would point out the increased rent his houses would command by a small outlay. To the tenant we would show the luxury of having no broken bells, no fear of loss of property by fire, no danger of being robbed or murdered by burglars, all of which comforts and conveniences can be secured at less outlay than the price often paid for a single ornament or piece of furniture.

Our illustration represents the burglar alarm C, fitted to

either door or window. The door, when closed, presses an unseen spring back, which is let in the hinge, and the circuit is disconnected, but, when opened ever so little, the spring presses against a platinum point, and, the current being completed, the bell rings, and continues ringing until stopped by a switch or the closing of the door. A new form of bell (for burglar alarm use, made by The Electric and Magnetic Appliance Stores, of 30, Liverpool-street, E.C.—to whom we are indebted for our illustration—) continues ringing until stopped at the bell itself, no matter whether the door is closed after it has once been set off, and will also start ringing in the event of thieves or burglars cutting the wires, and will continue ringing after the wires have been cut and parted.

NOTICES ON INVOICES AND STATEMENTS.

IT is a common thing for traders to put a notice upon their invoices and statements that they will claim interest at such a rate upon overdue accounts or after a fixed period. But these notices, standing alone, are really of no validity, for a man cannot make a contract by himself, nor can one firm bind another by means of a notice. In order to support a claim to interest there must be a contract for its payment, either express or implied, in the ordinary cases of goods sold and accounts rendered. All negotiable instruments—that is, bills of exchange and promissory notes—carry interest at five per cent. per annum, unless a higher or a lower rate has been agreed upon. So also some Judges allow interest upon a dishonoured cheque, and this seems only fair; but the practice is not settled or universal. The mere fact of there being an admission of the debt in writing will not make it carry interest, so that an I O U does not have this effect. But provision may be made for the payment of interest, only then care should be taken to stamp the document as an agreement, or it will not be available as proof in Court. It sometimes happens that goods are to be paid for by a bill which is not given, and in these special cases interest may be recovered on the price of those goods from the time at which the bill, if given, would have become due.

As a general rule, then, it may be taken that interest cannot be recovered either upon the price of goods sold or upon the balance of an account stated merely because this price is overdue or that account has long been in arrear. There must be a contract upon which to base the claim, but, as already noted, that contract may be either expressed or implied. If there is a distinct agreement on the part of the purchaser to pay interest upon his account, that of course can be enforced, and interest according to the terms of this agreement can be recovered. Where there is no express contract of this sort one will often be implied by law, if the facts of the case warrant the implication. For this purpose, prior dealings and former transactions between the parties may be inquired into, in order to see if it were intended that interest should be chargeable. Then, if interest has been paid or allowed in earlier cases, this would be strong evidence in favour of its recovery upon later accounts. So again, if it can be shown that it is the regular usage of a particular trade to charge interest, this would support a claim. At one time it was thought that if the parties went into their accounts and agreed upon a balance, the law should imply a promise from the debtor to pay the creditor interest upon that balance, but this view of the matter is not now generally taken. Traders who wish to charge their

customers with interest should, therefore, either get them to give a bill or to write a letter agreeing to pay interest upon arrears.

There is, however, another way by which interest can, in some cases, be charged and recovered. By the Statute 3 and 4, Will. IV., c. 42, s. 38, it is enacted that upon all debts or sums certain, the jury at the trial may, if they think fit, allow the current rate of interest to the creditor. But this can only be done where the debt is payable by virtue of some written instrument, or where a demand in writing has been made for payment, with a notice therein that interest will be claimed from the date thereof until payment. This statute is evidently only applicable where there is an action and a trial, while the discretion of a jury, or in a county court of the Judge (who is also the jury), can only be exercised when the debt is payable upon a written document, or there has been a demand and notice in writing as mentioned. The mere statement often placed upon an invoice or account would not be enough to satisfy the statute, as it could not be considered as the necessary demand for payment with notice that interest would be claimed for a sum certain from its date until payment. Besides bills of exchange and promissory notes, which carry interest at five per cent. per annum, it may be noted that interest at four per cent. is chargeable upon a judgment. The payment of interest by a debtor often becomes very important, inasmuch as it may prevent the defendant from being barred by the Statute of Limitations, and so save the right of action to the creditor.

The use and validity of the notices that are often put upon invoices and statements raise very wide questions. To begin with, as we have said above, a man cannot make a contract by himself; nor can he by a notice bind another to the terms so set down, for no one is obliged to read every printed paper; and generally speaking such a notice can have no effect until it is proved to have come to the knowledge of the debtor, who may then be taken to assent to it, if he has not dissented. With regard to payment, it is a general rule that an agent who has authority to sell goods is also authorised to accept payment for them. But this payment must be made in money, and it cannot be by means of a cross account or by goods. So also such an authority may be withdrawn if given, though this could only be done by express notice sent from the principal to each customer. Where there is a general notice that all accounts are to be paid direct to the principal printed at the head of an invoice, its validity may be doubted in a case where the customer had paid the agent from whom he had purchased in the *bonâ fide* belief that he was authorised to take money. Certainly such a debtor could not be made to pay the money over again, except upon satisfactory proof that the notice requiring payment to the principal had come to his knowledge.—*The Warehouseman and Draper.*

A PERFECTLY BOUND LEDGER.—Messrs. Blacklock and Co., of Farringdon-road, E.C., have patented an invention for a simple but effective arrangement in the binding of account books, by which every page, from the commencement to the end of the book, opens out so flat that on a ruler being passed across the two pages a continuous line can be drawn. This is so perfect an invention that even the best old style of binding cannot equal it. No extra charge is made for the novelty, so that either in the old or new style merchants can have their books bound. Messrs. Blacklock would be happy to show the invention to any applicant. In business this is a capital invention. It is also particularly adaptable for binding music.

HINTS TO REPAIRERS.

By COG-WHEEL, in *New York Sewing Machine News*.

REMARKS ON THE NEEDLE.

IT is undoubtedly best to use the needle made expressly for the machine you are operating; but there are times when the repairer runs short of "sorts," and in such cases there are a few kinds of needles that are alike or so nearly alike as to fit the same machine and serve tolerably well for stitching.

Keystone and American needles are almost alike. The Howe, Empire, Buckeye and Wilson needles have sufficient resemblance to bear substitution for each other. Singer N. F., Bles, and O. S. Home are similar. Singer A, Singer Medium, Empire Plain, and Aetna Plain are alike. The Wheeler and Wilson No. 4 and Weed F. F. will work with the needles bearing each others' names.

There are other needles that can be used at a pinch. An old expert claims that a good needle must have a deep, narrow groove on the side opposite the loop-taker, about one-third the diameter of the needle in width, and two-thirds deep. The eye should be as long as the groove is deep, or two-thirds the diameter of the needle, and as wide as the groove all the way through.

A bad needle, or one too small or too large, will break thread. If the needle is bent it will often cause skipping of stitches, and sometimes uneven stitches.

If the needle breaks it is more than likely your own fault, caused by pulling the stitches to or from you in such a manner that the needle strikes the throat plate. The needle may, however, break in trying to sew extraordinary heavy seams when the pressure on the presser-foot is not heavy enough.

If the stitches are not even it may be sometimes caused by using too fine a needle with too coarse or uneven thread.

If the needle is set too low or too high it will cause drop stitches.

The needle, when descending, should occupy the exact centre of the needle hole.

Use as fine a needle as will permit the thread to pass freely through the eye.

Much care should be taken to adapt the size of the needle to the size of the thread; so that in passing through the fabric the thread will lie in and fill the groove without crowding.

Upon nothing does so much depend, in the proper working of sewing machines, as having the needle set right.

If the needle is set too low, there will be loose stitches; or if too high, the thread will break. The machine may miss stitches because the needle sets too far from the shuttle. A blunt needle causes a thumping noise and makes a machine work badly.

The time of a machine should be, that the needle, when it has completed its descent and ascended one-tenth of an inch in its first motion up, the point of the loop-taker should cross the needle to take, in its forward movement, the thread which has been carried down by the needle and thrown across the track of the loop-taker.

THE GRISCOM MOTOR.

THIS well-known motor, which is now becoming much used for driving sewing machines, is on exhibition at the Royal Aquarium among the electrical exhibits.

JAPANESE BRONZE WORK.—In the South Court of the South Kensington Museum is to be seen a beautiful and elaborate Japanese work in bronze, sent there, it is presumed, on approval for purchase. It is a tripod urn, chased with extreme finish and enriched with gilded studs. The tripod is placed on the stump of a tree, moulded "to the life" with such fidelity that the furrow of decay on one side, the concentric rings of the wood, and the marks of the saw which is supposed to have cut across the rings are shown completely. Between the legs of the tripod, and under the vase they sustain, stands a life-sized peacock erect, and as the heralds say, *regardant* of a peahen which appears on a lower level near his feet. The bird's plumage is of the finest order of execution, and even more remarkable for style than for finish, breadth and delicacy. On the vase which the tripod sustains are perched five life-sized doves. The beauty of the workmanship of the doves cannot be praised too much. The ornaments on the vase comprise guilloches and fleurons of the Japanese order. In a case in the same court the visitor will find two magnificent bottles of a globose form, with long necks, and about three feet and a half high. Their surfaces have been moulded in fine relief and complete finish, with representations of turbulent seas, in which numerous dragons, of monstrous forms and proportions, disport themselves with grand and passionate fury of action and menace. These superb specimens of Soochow coral lac have been bought by the Art Department for £325 the pair.

AUSTRALIA AS A FIELD FOR EMIGRATION.—The *Melbourne Argus* of January 31st, in an article on the subject of immigration, has the following:—The truth is that never was labour in greater demand throughout Australia, and never was there a better prospect of permanency than now. In the sister states the shiploads of immigrants are snapped up as they arrive, and the labour market seems to be hardened by each successive supply. Free emigration is stimulated by the assisted. In Victoria one manufacturer after another has deposed to the Tariff Commission that what retards trade is not a need of duties, but the scarcity of men. The condition of the farming interest speaks for itself. We have 2,000,000 acres of land under cultivation, and 100,000 men and women employed on farms, including the owners. One man is supposed to cultivate 20 acres, a calculation which of itself gives a lively idea of the straits to which the farmer is reduced. The existing cultivation could absorb thousands of additional labourers, and if another 100,000 men were available, an additional 2,000,000 acres could be put under cultivation to-morrow. We have hitherto but scratched our plains. We are now commencing to irrigate them. Our streams are muddy and fertilising, after the fashion of the Nile, and where they have touched the land they have sent up the yield of produce to 50 bushels of wheat to the acre. We have already supplied the world with gold valued at over £200,000,000, and after a long decline our annual yield is now steadily on the increase. Indeed, the Agent General could publish a true tale about Victoria which should read like a romance. Without doubt he could show that emigrants to Australia would in all human probability better themselves—and, for our part, we have the experience of America to prove that their presence would enrich us. And, as regards Australia, he could show that Victoria is the richest colony, has the most fertile land, and the most temperate climate.

HYGIENIC EXHIBITION.—Arrangements have been completed for an exhibition of hygienic dress, sanitary appliances, and household decoration, at Humphrey's Hall, Knightsbridge. The Exhibition will be opened on June 2 next. The exhibits will be divided into seven classes, and besides hygienic, rational, and artistic dress, will include food products, appliances for the sick room, home nursing, and home education, industrial dwelling and cottage hygiene, the sanitation of the house and hygienic decoration, heating, lighting, and cooking apparatus, fuel, &c. Applications for space, &c., are to be made to the superintendent, Mr. E. J. Powell, at the offices of the Society, 44, Berners-street.

Mail Guide for Australia and New Zealand.

APRIL TO JUNE, 1883.

VICTORIA, NEW SOUTH WALES, TASMANIA, SOUTH & WEST AUSTRALIA.

Viâ BRINDISI. Letters for Western Australia are forwarded by this Route ONLY. Letters for Victoria, South Australia, and Tasmania can also be sent, if specially addressed *Viâ San Francisco* or "Per Orient Line," *Viâ Plymouth* and by *French Packet, Viâ Marseilles*, to Adelaide, Melbourne and Sydney.

Mails from London via Brindisi.	Arrive at Alexandria.	Leave Colombo.	Arrive at King George's Sound.	Arrive at Adelaide.	Arrive at Melbourne.	Arrive at Sydney. Per Rail.
April .. 6	April .. 12	April .. 27	May .. 9	May .. 14	May .. 16	May .. 18
April .. 20	April .. 26	May .. 11	May .. 23	May .. 28	May .. 30	June .. 1
May .. 4	May .. 10	May .. 25	June .. 6	June .. 11	June .. 13	June .. 15
May .. 18	May .. 24	June .. 8	June .. 20	June .. 25	June .. 27	June .. 29
June .. 1	June .. 7	June .. 22	July .. 4	July .. 9	July .. 11	July .. 13
June .. 15	June .. 21	July .. 6	July .. 18	July .. 23	July .. 25	July .. 27
June .. 29	July .. 5	July .. 20	Aug. .. 1	Aug. .. 6	Aug. .. 8	Aug. .. 10
Leave Sydney Per Rail.	Leave Melbourne.	Arrive at Adelaide.	Arrive at King George's Sound.	Arrive at Colombo.	Arrive at Suez.	Arrive at London via Brindisi.
April .. 10	April .. 12	April .. 14	April .. 18	May .. 1	May .. 16	May .. 22
April .. 22	April .. 24	April .. 26	April .. 30	May .. 13	May .. 30	June .. 5
May .. 6	May .. 8	May .. 10	May .. 14	May .. 27	June .. 12	June .. 18
May .. 20	May .. 22	May .. 24	May .. 28	June .. 10	June .. 26	July .. 2
June .. 3	June .. 5	June .. 7	June .. 11	June .. 24	July .. 10	July .. 16
June .. 17	June .. 19	June .. 21	June .. 25	July .. 8	July .. 24	July .. 30

AUSTRALIA AND NEW CALEDONIA LINE.

Letters Posted in London.	Arrive at Adelaide.	Arrive at Melbourne.	Arrive at Sydney.	Arrive at Noumea, New Caledonia.	Leave Noumea, New Caledonia.	Leave Sydney.	Leave Melbourne.	Leave Adelaide.	Letters due at London.
April .. 10	May .. 22	May .. 24	May .. 27	June .. 2	April .. 23	April .. 28	May .. 3	May .. 5	June .. 15
May .. 8	June .. 19	June .. 21	June .. 24	June .. 30	May .. 21	May .. 26	May .. 31	June .. 2	July .. 13
June .. 5	July .. 17	July .. 19	July .. 22	July .. 28	May .. 18	June .. 23	June .. 28	June .. 30	Aug. .. 10
					July .. 16	July .. 21	July .. 26	July .. 28	Sept. .. 5

QUEENSLAND MAIL.

Evening Mail via Brindisi.	Leaves Townsville.	Arrives at Brisbane.	Leaves Brisbane.	Leaves Townsville.	Arrives at London, via Brindisi.
April .. 20	May .. 31	June .. 6	March .. 26	April .. 2	May .. 15
May .. 18	June .. 28	July .. 4	April .. 23	April .. 30	June .. 12
June .. 15	July .. 26	August .. 1	May .. 21	May .. 27	July .. 9
			June .. 18	June .. 24	August .. 6

ORIENT LINE.

Letters dispatched from London Evening.	Arrive at Adelaide.	Arrive at Melbourne.	Arrive at Sydney.	Leave Sydney.	Leave Melbourne.	Leave Adelaide.	Leave Naples.	Arrive at London about.
April 6	Steamers call at Adelaide on the outward voyage as may be arranged.	May .. 20	May .. 24	April .. 13	April .. 18	April .. 21	May .. 24	May .. 27
April 20		June .. 3	June .. 7	April .. 27	May .. 2	May .. 5	June .. 7	June .. 10
May 4		June .. 17	June .. 21	May .. 11	May .. 16	May .. 19	June .. 21	June .. 24
May 18		July .. 1	July .. 5	May .. 25	May .. 30	June .. 2	July .. 5	July .. 8
June 1		July .. 16	July .. 20	June .. 8	June .. 13	June .. 16	July .. 19	July .. 22
June 15		July .. 29	Aug. .. 2	June .. 22	June .. 27	June .. 30	Aug. .. 2	Aug. .. 5
June 29		Aug. .. 13	Aug. .. 17	July .. 6	July .. 11	July .. 14	Aug. .. 16	Aug. .. 19

NEW ZEALAND, FIGI ISLANDS AND NEW SOUTH WALES.

Leave London, Evening.	Leave San Francisco.	Arrive at Auckland.	Arrive at Sydney.	Leave Sydney.	Leave Auckland.	Arrive at San Francisco.	Arrive at London.
April 19	May .. 5	May .. 28	June .. 2	April 19	April 24	May .. 17	June .. 4
May 17	June .. 2	June .. 25	June .. 30	May 17	May .. 22	June .. 14	July .. 2
June .. 14	June .. 30	July .. 23	July .. 28	June .. 14	June .. 19	July .. 12	July .. 30
				July .. 12	July .. 17	Aug. 9	Aug. 27

The Mails to and from India, China, Ceylon, Japan, Africa, &c., will appear in forthcoming issues.

THE VERTICAL FEED SEWING MACHINE.

Beyond dispute the only really Perfect Machine yet produced.

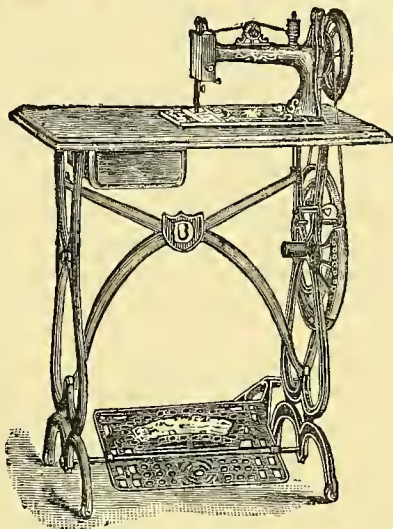
AWARDED THE
ONLY GOLD MEDALS

AT THE

SYDNEY & MELBOURNE

EXHIBITIONS,

In Competition with all the leading Machines.

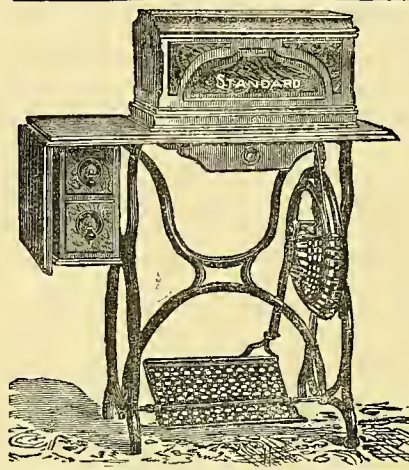


This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking, and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity, and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the Work and every information, may be obtained at the Offices of the Company,

52, QUEEN VICTORIA STREET, E.C.
SOLE ADDRESS IN LONDON.

THE
**LIGHT-RUNNING
STANDARD**
Has No Equal.



**NONE SO SIMPLE,
NONE SO DURABLE,
NONE SO RELIABLE.**

Examine it Before Purchasing any other.

**RENNICK, KEMSLEY & CO.,
4 FINSBURY CIRCUS, LONDON,**

ALSO,
Melbourne and Sydney.

SEWING MACHINE TRADE—Surplus Stock of Pannelled Walnut Covers for Singer Machines, 6s. 6d. each; Best quality Needles, 4s. per gross; India-rubber and galvanised Clothes Wringers, 18s. 9d., sell 30s. Samples on receipt of P.O.O. Address **BRITANNIA COMPANY**, Makers of Lathes, Fret Saws, Bicycles, &c. Colchester.

SEVERAL sets of Rooms to let for Manufacturing or Warehouse purposes, large or small, high, well ventilated, and warmed, with, or without steam power, rents low.—Apply to **A. PAGET & COMPANY**, LOUGHBOROUGH, LEICESTERSHIRE.

WANTED, a thoroughly Capable Man to superintend the packing and shipping of Sewing Machines. He must have had practical experience in this work and must give satisfactory reference. Call or address **THE WHITE SEWING MACHINE COMPANY**, 19, QUEEN VICTORIA STREET, E.C., LONDON.

JOURNAL OF DOMESTIC APPLIANCES

AND

Sewing Machine Gazette.

THERE are few of us who have not heard of the enterprising Yankee, who had desired to purchase Mont Blanc for an advertising station. This, like many other American tales, must be taken *cum grano salis*; still it is indicative of the great desire for publicity which pervades the mind of Cousin Jonathan, and which ever shows

itself in the glaring announcements on our hoardings of novelties which hail from the land of the stars and stripes, and in the advertising pages of every trade journal which come to this country from across "the pond." No matter whether it be the organs of the American sewing machine industry or the journals of other branches of commerce, the same bold, attractive announcements are seen in their pages. Cousin Jonathan likes something that will immediately arrest the attention of the eye, and although, regarded from an English point of view, it may occasionally offend the canons of good taste, by verging on vulgarity, or being too self-laudatory, we cannot but admit that in general "get up" and boldness of design the advertisements are much superior to ours. It is notably so with regard to the sewing machine journals. In the art of printing, America is much in advance of this country, and the engravings in American periodicals have a clearness and sharpness of outline which our artists on wood would do well to imitate. It is noticeable, too, that many American sewing machine announcements show much originality of design and are proof of no mean expense in "get up." Would such advertisements answer in this country? We think not; some that we have recently seen we are sure would not, for they would be considered by many—those, of course, who have not the latitude of opinion and delicacy of feeling now characteristic of some of the English free-thinking community—as almost sacrilegious. Others of a comic nature would be considered by leading firms of this country as *infra dig*. A trade advertisement, to be read by English men of business—we are not speaking of the great public—must be clear, bold and brief, and free from anything foreign to the subject, even though it be to give it attractiveness. We are afraid that plain, matter-of-fact John Bull would frown and regard such an innovation as frivolous and nonsensical. We will not be so egotistical as to say that we are too refined and have too much good taste to look favourably on the "puff" of the Yankee announcements but will suppose that we are not yet "educated up" to a due appreciation of American trade advertisements. At the same time we will say this, that in the designing of bold attractive announcements, and in the printing of the same, the English advertiser and printer can with advantage borrow some good ideas from the publications of Cousin Jonathan. If they offend—as they often would—the Englishman's keener sense of propriety, he can take the good and leave the bad behind.

OUR ILLUSTRATED SUPPLEMENT.

THE WHITE SEWING MACHINE COMPANY'S NEW NO. 12 MANUFACTURING MACHINE.

OUR Illustrated Supplement, which we this month present to our readers, will again serve to prove how keen the competition for supremacy has become in Sewing Machines between the majority of the large manufacturers of the United States—the acknowledged home of inventive

genius—particularly applicable to the sewing machine and domestic labour saving appliances.

It is but a few months ago that we had to chronicle the advent to the English market of the large and high arm machine for family purposes, which has since become decidedly preferential to all others. The White Sewing Machine Company, of Cleveland, Ohio, U.S.A., now established in London as a centre for European trade, was, perhaps, the first company to push thoroughly the new system, and, by judicious use of ample capital and unusual energy, have established so great a reputation all over the eastern continent, that manufacturers of sewing machines on both sides of the Atlantic have, so to speak, been put on their mettle. Improvements have followed improvements, and it might have been fairly said that the acme of perfection had been reached. Not so, however; for many new patents have been granted recently for new machines, more particularly designed, however, for manufacturing purposes. The latest production of this nature we give as the subject of our illustration, the New No. 12 Machine, manufactured by the White Sewing Machine Company. In this particular design the company claim to meet a long felt want with a certainty. It is an improvement on the family machine of a decided kind, although combining all the most salient points of excellence of the original White. Simplicity, if possible, has been simplified. Exceeding lightness in running compatible with good service is made an especial study, and noiselessness emphasised by the absolute perfection of the working parts. Lastly, the price, a great desideratum, has been placed sufficiently low to bring it within the reach of all. We have been assured, and cannot doubt but that the machine will prove invaluable to tailors, corset manufacturers, and clothing factors, either for treadle use or running under steam. Consignments from the factory are now being received in large quantities, and the machine may be examined by all interested at the offices of the White Sewing Machine Company, 19, Queen Victoria-street, London, E.C.; and 28, Rue de Turin, Paris; 81, Rue de Midi, Brussels; and 79, Vijzelstraat, Amsterdam.

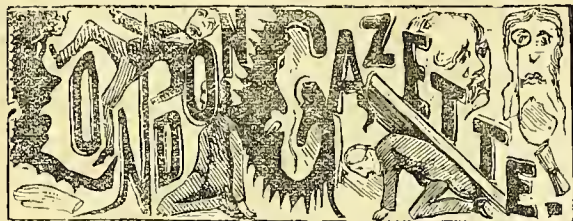
GOLD-COLOURED LACQUER.—A very beautiful and good gold-coloured lacquer may be made as follows:—Take—

Turmeric 1lb.
Rectified spirits of Wine..... 2 gallons.

Macerate, strain, and add to the liquid—

Gamboge 1½oz.
Shellac 1lb.
Sandarac 3½lb.

When dissolved, strain, and add a quart of good turpentine varnish. An article coated with ordinary lacquer exposed to a tolerably strong heat, becomes of a rich brown colour more or less deep in proportion to the heat employed; not only, however, is the colour changed, but it is a much harder colour and more insoluble than before. If an ordinary lacquered article be immersed in sulphuric, either in a boiling solution of washing soda, or pearl ash, it will be immediately stripped of its gummy covering; but, after a previous exposure to heat, the insolubility of the lacquer may be so much increased that either of the above methods of removing it will prove ineffectual, but an immersion for a minute or two in a strong and hot solution of cyanide of potassium permits the film to be peeled off with ease.



LIQUIDATIONS BY ARRANGEMENT OR COMPOSITION.

Torbitt, J. H., Ironmonger, Eccleshall, Staffordshire, Feb. 17, at Town Hall, Eccleshall, March 14, at 3. T. Robinson, Solicitor, Eccleshall.

Whitehead, T. H., General Hardware Dealer, Kirkgate, Leeds, Feb. 12. W. B. Cross, Solicitor, Bradford.

Birkitt, G., Grate Manufacturer, Siddal's-road and Madeley-street, Derby, March 1. Mole and Stone, Solicitors, Derby.

Cambridge, W., Ironmonger, The Bird Cage, Skircoat, late Crown-street, Halifax, March 7. At White Swan Hotel, Halifax, March 28, at 1. W. Wilkinson, Solicitor, York.

PARTNERSHIPS DISSOLVED.

Crabtree, F. O., Brass Founders, Halifax.

Bellamy and Bach, Brass Workers, Birmingham.

Bonney and Wilkes, Nail and Screw Manufacturers, Birmingham.

Causar and Ford, Iron Plate Workers and Japanners, Wolverhampton.

Richard Whittaker and Co., Ironmongers, Manchester.

Walters, Sanders, and Rose, Brassfounders and Hardware Factors, Birmingham.

DIVIDENDS.

Bromhead, A., trading as Bromhead and Co., (Liq.) Ironmonger, Earlestown, Lancashire. First and final dividend of 10d. at J. Davies, Voisey and Davies, Accountants, Warrington.

Hughes, W., Gasfitter, trading as W. Hughes and Co. (Bkt.), Liverpool and Rock Ferry. A final dividend of 8d. at J. W. B. Brown's, Cannon-chambers, Cannon-street, Birmingham.

Jewhurst, R., Ironmonger, Margate. Third and final dividend of 1s. 1d. at D. J. Poole's, Cecil-street, Margate.

Newby, G. (Liq.), Gasfitter, trading as G. Newby and Co., Leicester. First dividend of 1s. between 10 and 1 o'clock at E. P. Steed's, 22, Friar-lane, Leicester.

BILLS OF SALE.

Cumming, R. H., Ironmonger, Fore-street, Lostwithiel, Cornwall, for £50, to W. J. Walter. Filed Feb. 22.

Hickman, K., Ironmonger, 5, Spring-bridge Villas, Ealing, for £150, to F. Hickman. Filed March 10.

DECORATIVE TREATMENT OF METAL.—A course of three Cantor Lectures on "The Decorative Treatment of Metal in Architecture," will be delivered by Mr. E. H. Birch, Assoc. R. Inst., B.A., at the Society of Arts, on Mondays, April 2, 9, and 16. The first lecture will deal with the decorative treatment of the precious metals in ancient architecture and its occasional use in Egyptian, Assyrian, Babylonian, Mede, Persian, and Jewish architecture, as well as in Greece and Rome, and during the Christian Dispensation. This will be followed by a reference to the Bronze age; the nature and qualities of bronze; its earliest use in Nineveh, Babylon, Mycenæ, Etruria, and during the classic period. The subject of bronze will be continued in the second lecture, when its history will be carried to the culminating point during the Renaissance. The art of the blacksmith, and the use of wrought iron in the North of Europe will then be referred to. Ironwork will be continued in the third lecture, and an account given of its development at Augsburg and Nuremberg in the fifteenth and sixteenth centuries, and in England in seventeenth century. The artistic treatment of Lead in the Middle Ages will then be considered; and in conclusion the lecturer will make some remarks on the use and abuse of metal work; on modern bronze work; on the decorative treatment of the metals, as applied in these days; and point to our failures and successes. An exhibition of metal work will be arranged in connection with the lectures.

EXPORTS AND IMPORTS OF SEWING MACHINES During March, 1883.

EXPORTS FROM LONDON.

Cape of Good Hope	..	..	12	Sewing Machines
Freemantle	..	..	358	do.
Kurrachee	..	..	12	do.
Natal	..	..	39	do.
New York	..	..	1	do.
Sydney	..	..	12	do.
Colombo	..	..	16	do.
Mauritius	..	..	6	do.
Otago	..	..	£600	do.
Singapore	..	..	6	do.
Lisbon	..	..	6	do.
Madras	..	..	3	do.
St. Kitts	..	..	1	do.
Salonica	..	..	2	do.
Copenhagen	..	..	1	do.
Demerara	..	..	45	do.
Hambro'	..	..	12	do.
Jamaica	..	..	12	do.
Madras	..	..	12	do.
Rotterdam	..	..	1	do.
Wellington	..	..	12	do.
Yokohama	..	..	£16	do.

FROM LIVERPOOL.

Accra	..	..	1	Case.
Bombay	..	..	12	do.
Calcutta	..	..	1	do.
Ceara	..	..	28	do.
Canada	..	..	1	do.
Corunna	..	..	4	do.
Grand Bassam	..	..	1	do.
Larnaca	..	..	3	do.
Maranham	..	..	1	do.
Pernambuco	..	..	62	do.
Para	..	..	232	do.
Sierra Leone	..	..	1	do.
Vigo	..	..	30	do.
Arica	..	..	24	do.
Bolton	..	..	1	do.
Havre	..	..	5	Cwt.
Mayaguez	..	..	6	do.
Almeria	..	..	10	Cases
Colon	..	..	4	do.
Gijon	..	..	61	Crates
Santander	..	..	13	Cases

IMPORTS INTO LONDON.

H. Loog	..	..	..	..	£2,082
Millwall Dock Co.	..	..	..	..	£225
Newcombe and Son	..	..	..	..	£223
E. H. Rolfe	..	..	..	..	£5,540
Stahlschmidt	..	..	..	..	£86
T. G. Gray	..	..	..	..	£10
Harris, Goodwin and Co.	..	..	..	..	£45
White Sewing Machine Co.	..	..	..	..	£525
Van Oppen and Co.	..	..	..	..	£157
Gordon and Gotch	..	..	..	..	£506
Horne and Crampton	..	..	..	..	£3,551
Rennick, Kemsley and Co.	..	..	..	..	£200
Becker and Ulrich	..	..	..	..	£14
J. Hornett	..	..	..	..	£5,121

INTO LIVERPOOL.

R. Steinmann and Co.	..	..	..	..	£40
J. Moss and Co.	..	..	..	..	£5
Allan, Biss and Co.	..	..	..	..	£28
Bahr, Behrend and Co.	..	..	..	..	£8
J. Bushby	..	..	..	..	£7
Staveley and Co.	..	..	..	..	£140
Flinn, Main and Co.	..	..	..	..	£5
Bulman and Co.	..	..	..	..	£3,156

THE BANKRUPTCY BILL.

The new Bill to amend and consolidate the law of Bankruptcy is an ambitious measure, containing 158 sections, and two schedules of fifty rules, and it will require to be supplemented and completed by many more rules to carry out its practical working. The act of 1869 is repealed entirely, and although its best clauses are re-enacted, there is no doubt that the new Bill would, if passed in its present state, make a great change in the law relating to bankruptcy by bringing it back in some respects to what it was under the old Act of 1849; while it would still further revolutionize the administration of bankruptcy as distinguished from its purely legal aspect. Upon so large a subject we can do little more at present than point out the salient features of the new Bill. First and foremost comes the proposal to give the control of insolvent estates to the Board of Trade, through the agency of official receivers, who, though attached to the various Courts of Bankruptcy, are to be under the direction of the Board. Upon the presentation of a petition, either by the debtor himself or by a creditor against him, the Court will make what is called a receiving order and will appoint an official receiver. This order is to operate as a stay of all proceedings pending against the debtor, to vest his estate in the receiver, and to give that official full authority over his property, and to some extent his person. Indeed, the receiver is to be pretty well master of the situation, and upon his capacity much must depend.

The official receiver is to call meetings of creditors, and preside at the same. With regard to the first meeting especially, it is provided that it shall be held for the purpose of considering whether a proposal for a composition or scheme of arrangement shall be entertained, or whether the debtor shall be adjudicated bankrupt. In this way the meeting will offer the debtor an opportunity of carrying out a composition or liquidation. But these pleasant processes, as now understood, are entirely abolished, and the new method is a very different affair. In order to keep out of bankruptcy proper the debtor will have to get his creditors to pass a special resolution at their first meeting accepting his proposal for a composition or scheme of arrangement. This acceptance must then be ratified by another special resolution passed at a second meeting, which, however, cannot even be called until after the debtor has passed his public examination in open court. Having got so far with his creditors, the debtor has then to reckon with the Court, for his proposals are of no use until they are confirmed. The Court will not confirm a composition or scheme of arrangement until after hearing the report of the official receiver upon the conduct of the debtor; nor can such a confirmation be granted in any case where less than five shillings in the pound is to be paid, unless the Court is of opinion that the debtor's insolvency was caused by misfortune, without any misconduct. It will thus be seen that the new method of compounding with creditors is pretty well hedged around by precautions.

It is a feature of the new Bill that no debtor shall escape a public examination, and, with the aid of the receiver's report, the cross-examination of creditors, and questions from the Court, that ordeal should be somewhat severe. Indeed, the debtor will be subject to no fewer than three different jurisdictions, for both himself and his estate will be under the control of his creditors, the Court of Bankruptcy, and the Board of Trade, in their respective capacities. We have had before now trade and official assignees working together, generally at the expense of the estate, but this is the first time it has been proposed to set up a third authority, somewhere between and to a certain extent independent of the other two; and time and experience alone can tell how it will work in practice. If the creditors at the first meeting decide upon refusing the debtor's offer of a composition or scheme of arrangement, and proceed to adjudication, they can either elect their own trustee or let the official receiver continue acting as such. Whoever may be the trustee appointed, there is no doubt that the checks upon his conduct are complete and ought to be sufficient, seeing that the Court and the Board of Trade are to assist each other in looking after him and the

estate. The clauses relating to a bankrupt's discharge are a return to the older and sounder system in force prior to the Act of 1861. It will go hard with a debtor who has not paid ten shillings in the pound, while elaborate provision is made for considering his conduct and dealings, and for granting conditional orders. At present few debtors take the trouble to get their discharge, and go on trading without one. The new Bill aims at stopping this practice in a clause which provides that any undischarged bankrupt who obtains goods or credit of any person to the extent of £20 without informing him that he is an undischarged bankrupt will be liable as for a misdemeanour.

This section strikes us as rather too severe; and in fact we doubt whether the Bill, taken as a whole, is not so stringent as to defeat its own object. It is admitted on all hands that the present practice is disgracefully lax. But there is a danger of our rushing into the opposite extreme. The clause as to compositions or arrangement is, for instance, very severe in so far as it secures a debtor to pass his public examination before he can carry out his proposals. It is right that every case of fraud should be exposed, but, on the other hand, by the new Bill creditors will be nearly as powerless as debtors, because of the authority given to the official receiver and the general control vested in the Court. Private arrangements will probably become more common than ever under the new law, but these are not always to the best interests of creditors generally. There is another important novelty in the provision for what are called "small bankruptcies," or those in which the property of the debtor does not exceed £300. In these the debtor's estate is to be administered in a summary manner with the official receiver as trustee, and no committee of inspection, unless the creditors interfere by special resolution. Then there is another clause giving the County Courts a power which practically enables them to administer the estate of small debtors who are insolvent. The whole Bill is throughout a bold experiment in the way of reforming the law of bankruptcy, to which we wish every success, and upon which we shall have more to say as it passes through Parliament.—*The Warehouseman and Draper.*

IDLERS AS INVENTORS.

IT is popularly supposed that, in order to invent a machine for any particular purpose, one must be an expert in the particular business for which the machine is designed. To a certain extent this belief is correct, but it somehow happens that many of the most valuable inventions have been brought out by persons who had no practical experience whatever in the use of the machinery appertaining to the business for which their inventions are designed. It is not denied that many of our most valuable inventions are the works of mechanics and operatives of machinery; but it is asserted that a great many valuable inventions have been brought out by men who had no practical experience either as mechanics or operatives in the line of their inventions. It frequently happens that persons who have no special knowledge of machinery, when looking at the performance of some engine or other machine, discover a chance for improvement and drop suddenly into the highway to fortune.

The writer has just had an interview with a young man recently graduated at a medical college. His mind is not on pills or amputations; but he fancies he can see opportunities for improvements all around him, and he is now developing several important railway inventions, a sheet music turner, and several other devices not in any manner connected with his chosen profession. One would suppose that his inventive genius won't turn to surgical and dental instruments, artificial limbs, etc.; but he, like thousands of others, leaves his chosen path, seemingly led astray by some invisible power over which he has no control. A man

with no calling or profession is usually styled a "loafer;" yet many valuable inventions have been produced by such men.

One of the greatest inventions the world has ever seen was whittled out by an idler in a few minutes. He caught the idea by seeing a man trying to get an implement repaired. He saw the affair was imperfect, improved it, and revolutionized the world in its most important industry. He was no longer called a loafer, and although long deceased, he is now, and will be as long as the world exists, regarded as one of the greatest inventors ever known. It is by no means meant that all inventors are men of no steady occupation; but it is an undeniable fact that many of our most valuable inventions are from the brains of men who were considered as idlers and of no account.

This is not mentioned here to cast any reflections on inventors as a class; for it is well understood that we are wholly indebted to them for the wonderful progress the world has made and is making, but to encourage that class who have no faith or confidence in their inventive abilities and therefore make no efforts. In many communities the man who gives his time to perfecting some device is styled a "lazy good-for-nothing;" but when he finds himself successful his old acquaintances are pleased to know him. It will be seen that our inventors range from millionaires down to loafers, or rather *vice versa*. Perhaps the term "loafer" is hardly appropriate; but as there are so many of them who ultimately take their places in the ranks of the industrious and wealthy, some allowance may be made for the seeming slur on a very worthy class of people.

The mechanic who has to win bread for himself and family has hardly time to devote to inventing; but the idle man who has nothing to do, if he keeps his eyes open, carries off the prize in many instances. But there are many who have an idea that they cannot invent because they are not possessed of means to develop their ideas. They look ahead to those who have been successful and say, "They have been lucky, and have means to handle their inventions, while I am without a copper, and can do nothing." Most of our successful inventors have been those who had no means in the shape of cash, but they had its substitute—*pluck*. There are hundreds of men who might pick up some valuable ideas and work them into shape if they were possessed of the requisite pluck. It will not do to sit down and say, "I wish I could invent something." Our successful inventors were not of this stamp, and this is written to encourage all who have a taste for invention to reach for a successful development of their ideas and put them in practical shape. To conclude: Our inventors are men of pluck, and may be regarded as our best citizens, even if they were once idlers.

BRADBURY AND Co. (LIMITED), OLDHAM.

THE report and balance-sheet of this Company of sewing machine manufacturers for the year ended February 10th, states that the year's trade shows a profit of £14,318 19s. 10d., out of which the shareholders have received an interim dividend of 10 per cent., absorbing £3,516 2s. out of balance. The directors now recommend payment of a dividend at the rate of 10 per cent. per annum, which will also absorb £3,516 2s., leaving the balance to be dealt with as follows:—£5,000 to be written off goodwill and patents, and the extinction of goodwill at depots £100, the remainder to be carried forward to the current year's account.

STEEL AND CAST STEEL.

THE growing importance and increasing employment of steel in machinery and shipbuilding, and the frequent use of the term in speaking or writing of mechanical industries, have tended to confuse the popular idea as to what steel is, and what steel was. The word itself conjures up ideas of cutting implements mainly, of a metal capable of being so hardened and tempered as to cut other metals, rocks, and almost all mineral substances, as well as to work wood and a hundred other soft materials. And when steel is spoken of as being used for shafting, for heavy castings, for plates of which to build up the sides of ships, for railroad rails, and similar purposes, the ordinary and unmechanical mind is confused, and doubts the economy and the advantage of using the material for such purposes. Perhaps a brief description of processes may serve to make distinction.

For the production of cast steel the best Swedish iron is used, that known to the trade as "Danemora iron" being generally employed, although iron possessing similar properties but from other localities is largely used. Bars about 3in. wide by $\frac{1}{2}$ in. thick are of handy and much used size. These are packed in air-tight chambers with fine charcoal, and so arranged that no two bars touch, and fires are kept up from nine to fourteen days by means of furnaces of anthracite coal. Bituminous coal also has been and is used with satisfactory results. Test bars may be drawn from time to time, until by the judgment of an experienced workman the cementation is complete. This roasting of the iron in combination with charcoal imparts to the iron a certain degree of carbon as compared with the other constituents, that has the effect to totally change its nature.

When removed from the cementation furnace the bars are covered with blisters, hence the name "blister steel" for steel in this condition. Formerly—within forty years—this blister steel was largely used by blacksmiths for purposes for which now only cast-steel is employed. In the "relaying" of axes, for instance, it was used, the quality of the steel being greatly improved by repeated hammerings after heatings.

The bars of blistered steel are very brittle, and are broken up into pieces of about 1lb. weight or less, put into crucibles of plumbago, and subjected to an enormous heat for from two to two and a-half hours, and then poured into cast-iron moulds of cylindrical form inside, the ingot thus cast weighing about 50lb. usually, although much larger ingots are made if the after nature of the work requires it, or the resultant product demands. If the top of the ingot, while in a fluid state, does not sink in the centre (the moulds being placed on end while the steel is poured), it is evidence that the casting is unsound, and no after re-heating and hammering can rectify the fault, the only remedy being to break up and remelt the honeycombed steel.

The ingots are re-heated after being cast, and subjected to the hammer and then to the rolls. And in the form of flat and round bars, and rods, and plates, this product goes out to the world as cast-steel, the great cutting material.

For the production of the steel used for building and common mechanical purposes and for railroads there are several processes, but they each bring about a similar result, and except for details of manipulation and employment of differing means, use the same materials. In some cases the steel is made from the ore, but in most from the iron (cast.) The Bessemer process will probably stand as a sufficiently general type of the principle of "converting" to enable the reader to understand the difference between 'steel and cast steel.' In the conversion of iron into common, or Bessemer steel, the iron used is pig, or cast-iron, and not wrought-iron in bars. This iron is selected for the quality of its ore, and so mixed as to aid in the process of conversion, and to produce satisfactory results. These particulars are unnecessary for the purposes of this article.

The iron is melted in a cupola just as it is in any iron foundry, and when melted is run into an immense pear-shaped or pitcher-shaped vessel suspended on hollow trunions, through which a powerful blast of compressed air is driven by means of blowing cylinders at a

pressure varying from 15lb. to 25lb. per square inch. This pressure is varied during the process, which for seven tons of melted iron would require 15 or 18 minutes. This blast of air rushes through the boiling metal, burning out the phosphorus and sulphur, and a portion of the carbon, usually about 10 per cent. This loss of carbon is made up by the addition of a certain amount of *spiegeleisen* to the ingredients. "*Spiegeleisen*"—"mirror iron" is an iron containing an unusual amount of carbon.

The converters are made of thick boiler iron, and lined with a cement of ground flint and quartz, fire-clay not being sufficient to withstand the intense heat generated by the union of the oxygen of the blast with the sulphur, phosphorus, and carbon of the metal. The end of the converting process is determined by the colour of the flame rushing from the top of the converter. At first, when the blast is first put on, it is blue and smoky, afterwards red, then graduating to yellow, and at last to pure white.

When the process is completed the blast of air is shut off, the immense pitcher is turned on its trunnions, its contents poured into large ladles, which empty into iron moulds, casting huge ingots, sometimes of a weight of 3,000 lb. The after-working of this Bessemer steel is similar to that of cast-steel, a reduction by hammer and rolls.

It will be seen from these general descriptions that the production of "decarbonised," "crude," "low," or "Bessemer" steel and that of cast-steel are different in materials used, methods employed, and in results reached.

THE PRESERVATION OF STEEL.

EXPERIMENTS are at present being carried on in Belgium to preserve steel, and steel gun barrels in particular, by coating them thinly with copper by a process of which M. F. Weil is the inventor. Its peculiarity consists in the composition of the baths used, in which the usual and always dangerous alkaline cyanures—which, besides, require constant renewal, and are consequently very expensive—are replaced by organic acids and glycerine. According to M. Weil, these baths require no renewal of organic elements, and can be used continuously, when they are saturated with peroxide of copper. They possess also the advantage—owing to the property inherent in organic alkaloids, of dissolving the peroxide of iron without attacking the metallic iron itself—of cleansing the steel before the commencement of the coppering process, and more perfectly than can be done mechanically. The coppering is effected by putting porous clay vessels, filled with caustic soda lye in which zinc plates have been immersed, in the basin containing the organic copper base (alkaloid) and the steel. The zinc plates are connected with the steel articles to be coated with copper by a thick copper wire. The caustic lye may be used over and over again. Should it become saturated with oxide of zinc, it is sufficient for its regeneration to treat it with sulphide of sodium, when the oxide (of zinc) will be precipitated, and a valuable by-product obtained, by which the cost of the process will be considerably reduced. The coppering process, it is said, occupies but a very short time.

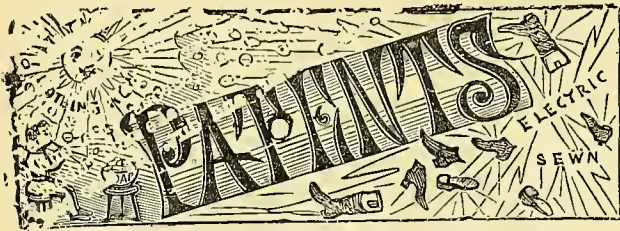
A FREE SMOKE ABATEMENT MUSEUM.—The National Smoke Abatement Institution is making arrangements for opening a permanent exhibition in a central part of London, in an extensive range of buildings, for the display of apparatus, fuels, and systems of heating, combining economy with the prevention of smoke, and the best methods of ventilating and lighting. The exhibition will be free to the public, and will include examples of all the most recent inventions and improved apparatus. A lecture hall, for the reading of papers and instruction classes, will be provided; also testing rooms, under the supervision of experts, for the purpose of continuing the series of tests and trials commenced in connection with the South Kensington and Manchester Smoke Abatement Exhibitions of 1882. Particulars may be obtained at the offices of the National Smoke Abatement Institution, 44, Berners-street, Oxford-street, London, W.

AN ELECTRICAL TRAMCAR.

IN the presence of Sir Frederick Bramwell, Dr. Siemens, many leading electricians and scientists, and a number of members of Parliament and others interested in the progress of electricity, the first public working, by the Electrical Power Storage Company (Limited), of an electrical tramcar was successfully conducted on Saturday afternoon. The starting point was the Shepherd's Bush terminus of the West Metropolitan Tramways Company, the car proceeding towards Acton and back again, under the direction of General Hutchinson, of the Board of Trade, who expressed his satisfaction at its excellent running, the rate being over six miles an hour. The car is fitted with Faure-Sellon-Voelckmar cells stored under the seats, the current being communicated by insulated wire to a dynamo machine, which acts as a motor, and connected with the axles of the wheels. The accumulators also light the car in a manner that contrasts most favourably with ordinary lamps in tramcars or omnibuses. The car was afterwards worked on the new line towards Gunnersbury and on to Kew-bridge. A difference of a quarter of an inch in the gauge here presented some little difficulty, the tramcar to which the new system had been adapted being one that had been running for years on the old lines of different gauge. Luncheon, under the presidency of Sir Daniel Cooper, Bart. (chairman of the Electrical Power Storage Company), was served at the Star and Garter Hotel, Kew, to nearly one hundred gentlemen. Interesting and instructive speeches were made by Sir Frederick Bramwell, Sir Hussey Vivian, Mr. Ernest Noel, M.P., Mr. Sellon, and Dr. Siemens. The electrical launch constructed by the company was shown at the bridge, having returned to the landing-place after working its way fifteen miles down against tide, then to return to the company's works at Millwall, carrying some of the visitors who contemplated landing at Charing-cross. It was stated at the luncheon that the daily cost of working each tramcar by electricity would stand at about 6s. 6d., as against £1 6s., the cost of horsing, being about one-fourth. The initial cost of adaptation of electrical machinery would be about the same as the purchase of horses. The electrical system presents great economy under the heads of premises and labour.

HOW TO LACQUER BRASS.

1. Be sure there is no oil or grease on the brass; do not touch the work with the fingers, hold it with spring tongs or a taper-stick in some of the holes.
2. Always handle with a piece of clean cloth.
3. Heat the work so hot that the brush will smoke when applied, but avoid overheating, as it burns the lacquer.
4. It is well to fasten a small wire across the lacquer cup, from side to side, to scrape any superfluous lacquer. The brush should have the ends of the hairs all exactly even. If not so, trim the ends with sharp scissors.
5. Scrape the brush as dry as possible on the wire, making a flat smooth point at the same time.
6. Use the very tip of the brush to lacquer with, and carry a steady hand.
7. Put on at least two coats. It is well (to make a very durable coat) to "blaze off" after each coat, with a spirit-lamp or Bunsen burner, taking care not to overheat and burn the lacquer.
8. If the lacquer is too thick, it will look gummy on the work. If too thin, it will show prismatic colours. In the first case, add a little alcohol; in the latter, set the cup on the stove and evaporate some.
9. A good deal of cheap work, like lamp-burners, is "dipped." Use a bath of nitric and sulphuric acids, equal parts, dip work, hung on wire, into acid for a moment, remove, rinse in cold water thoroughly, dip in hot water, remove, put in alcohol, rinse around, then dip momentarily in lacquer, shaking vigorously on removing to throw off extra lacquer, and lay on a warm metal plate till dry; let cool, and it is done.
10. Avoid handling lacquered work until cold.



The following list has been compiled expressly for this Journal, by Mr. G. F. Redfern, Patent Agent, of 4, South Street, Finsbury, London, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 780. C. F. Bower, of 43, College-street, Liverpool-road, London, Gentleman, for an improved potato steamer. Dated February 13, 1883.
- „ 790. J. Gautherin, of Boulevard Saint Denis, 1, Paris, for improved corrugated box irons for plaiting hosiery fabrics and other stuffs. Dated February 13, 1883.
- „ 796. W. J. Spurrier, of Birmingham, for certain improvements in the construction and arrangements of parts of velocipedes, applicable to other analogous purposes. Dated February 13, 1883.
- „ 798. W. B. Shorland, of Barton-on-Irwell and Manchester, for improvements in or applicable to latches and in securing knobs or handles to the spindles of locks and latches. Dated February 14, 1883.
- „ 801. W. Morgan-Brown—a communication from O. R. van Vechten, of New York, United States, Machinist, for improvements in sewing machines. Dated February 14, 1883.
- „ 810. J. Russell, of Reading, Berkshire, Agent, for improvements in gas cooking stoves. Dated Feb. 14, 1883.
- „ 812. H. Thompson, of Marquess-road, Canonbury, London, Builder, for improvements in the construction of domestic stoves and grates. Dated February 14, 1883.
- „ 814. J. Kaye, of High Holborn, London, Lock Maker, for improvements in locks and latches. Dated February 14, 1883.
- „ 815. T. Matthews, of Stoke Newington, London, Civil Engineer, and W. Bayliss, of Wolverhampton, Staffordshire, Manufacturer, for improvements in rail screws and similar screws employed for fastening articles to wood. Dated February 14, 1883.
- „ 825. W. Blakely, of Bournemouth, for improved means or apparatus for irrigating gardens with waste water from households. Dated February 14, 1883.
- „ 829. W. J. Dunderdale, of Huddersfield, Land Agent and Surveyor, for improvements in connection with water taps. Dated February 15, 1883.
- „ 838. C. Hinksman, of 117, Great Russell-street, London for improvements in machinery and apparatus for beating, cleaning, and brushing carpets, which invention is also applicable to other analogous purposes. Dated February 15, 1883.
- „ 861. H. Devine, of Manchester, for improvements in or applicable to pillar, door, and other letter-boxes. Dated February 16, 1883.
- „ 863. A. W. Pocock, of 15, Spencer-road, Wandsworth, London, Engineer, for improved construction or arrangement of mortice locks, and in the method of fitting them in position. Dated February 16, 1883.
- „ 865. W. D. Player, of the firm of Player Brothers, of Birmingham, Manufacturers, for improvements in the manufacture of metallic dowels. Dated February 16, 1883.
- „ 874. J. B. Goodwin, of Ely-place, London, Merchant, for improvements in apparatus to be attached to candles for the prevention of guttering and for ensuring a steady light. Dated February 17, 1883.
- No. 876. L. Silverman, of Westminster, London, for improvements in lock-stitch sewing machines, and in the shuttles and thread bobbins or cops employed therein. Dated February 17, 1883.
- „ 889. T. Fletcher, of Warrington, Lancashire, for improvements in and applicable to cooking stoves or ranges for gas and solid fuels. Dated February 17, 1883.
- „ 895. S. Barrett, of Keighley, Yorkshire, Shirt Manufacturer, for improvements in apparatus for starching collars and other materials. Dated Feb. 19, 1883.
- „ 900. W. Carrington, of Openshaw, near Manchester, Engineer, and W. H. Bowers, of Gorton, near Manchester, Manufacturing Chemist, for an improved water heater used in connection with circulating hot water pipes for warming greenhouses and all descriptions of buildings and places to which it can be usefully applied. Dated February 19, 1883.
- „ 902. G. P. Smith, of Tunbridge Wells, Kent, Gentleman, for improvements in velocipedes. Dated Feb. 19, 1883.
- „ 904. B. C. Cross, of Leeds, Civil Engineer, for improvements in waste preventing cisterns, Dated Feb. 19, 1883.
- „ 905. J. Dunbar, of Coalbrookdale, Shropshire, Foreman Fitter, for improvements in fire grates. Dated February 19, 1883.
- „ 917. D. M. Ford, of Bristol, for an improved bread loaf cutter. Dated February 20, 1883.
- „ 919. F. G. Fleury, for improvements in water waste preventers. Dated February 20, 1883.
- „ 920. H. W. Davidson, of Clapton, London, and J. Speir, of Arthur-street East, London, Merchant, for improvements in assisting the combustion of fuel in grates, and in promoting the draught therein, and in the apparatus or means employed therein. Dated February 20, 1883.
- „ 923. T. J. Mullings, of 16, George-street, Mansion House, London, for improvements in sash fasteners. Dated February 20, 1883.
- „ 930. W. J. Welsh, of Wells, Somersetshire, for improvements in taps, cocks, or valves. Dated February 20, 1883.
- „ 936. E. P. Alexander—a communication from C. H. Crawford, of New York, United States, for improvements in sewing machines and in the means for producing a binding or button-hole stitch therein. Dated February 20, 1883.
- „ 948. W. Jones, of Stamford Works, Guide Bridge, Lancashire, Sewing Machine Manufacturer, and H. Gamwell, of Liverpool, Machinist, for improvements in or applicable to sewing machines. Dated February 21, 1883.
- „ 950. W. Morgan-Brown—a communication from G. A. Leighton, and S. C. Forsaith, both of Manchester, New Hampshire, United States, for improvements in knitting machines. Dated February 21, 1883.
- „ 963. A. M. Clark—a communication from T. F. Curley, of Brooklyn, New York, United States, for an improved guard for carving forks. Dated Feb. 21, 1883.
- „ 971. T. H. Collins, of Winchester, Hampshire, for improvements in and connected with window fasteners. Dated February 22, 1883.
- „ 983. F. Johnson, of Nottingham, for improvements in knitting machinery. Dated February 23, 1883.
- „ 984. F. Hammond, of 2, Coleman-street Buildings, Moorgate-street, London, Architect and Surveyor, for improvements in chimney pots or apparatus for facilitating draught in chimneys, which improvements

- are also applicable to facilitate ventilation. Dated February 23, 1883.
- No. 988. H. Longden and C. F. Longden, both of Sheffield, Iron-founders, for improvements in apparatus for heating by hot water. Dated February 23, 1883.
- „ 990. J. Brown, of Montrose, Forfarshire, North Britain, for improvements in children's cots or cradles. Dated February 23, 1883.
- „ 993. J. Orme, of Barbican, London, Scientific Instrument Manufacturer, for improvements in and connected with the wheels of velocipedes or other vehicles having spider wheels. Dated February 23, 1883.
- „ 1003. L. A. Groth—a communication from Laura v. Dulcken, of Stuttgart, Germany, for a new or improved ironing stone. Dated February 24, 1883.
- „ 1008. J. A. Lamplugh, of the firm of Lamplugh and Brown, of Birmingham, Manufacturers, for improvements in saddles, which improvements are principally applicable to the saddles of bicycles, tricycles and other velocipedes and vehicles, but are also in part applicable to saddles for horses and other animals. Dated February 24, 1883.
- „ 1009. J. Warwick, of 59, Hilton-street, Manchester, Sewing Machine Manufacturer, for improvements in sewing machines, applicable also to other machinery. Dated February 24, 1883.
- „ 1012. R. Cunliffe, of the firm of Cunliffe and Croom, of Manchester, for improvements in lubricating the axles of perambulator, invalid carriage, bicycle, and other wheels. Dated February 24, 1883.
- „ 1024. A. M. Clark—a communication from Mrs. Ida Reed Opdyke, of Plainfield, New Jersey, United States, for improvements in cribs for children. Dated February 24, 1883.
- „ 1050. W. Morgan-Brown—a communication from M. Raschke, of Berlin, for improvements in bicycles. Dated February 27, 1883.
- „ 1053. A. J. Boulton—a communication from C. Dancel, of New York, United States, for improvements in machines for making button-hole linings. Dated February 27, 1883.
- „ 1054. F. H. White, of Liverpool, for improvements in baskets, boxes, and other like articles required to be packed away in smaller compass when not filled. Dated February 27, 1883.
- „ 1056. H. Vaughan and T. Vaughan, both of Willenhall, Staffordshire, Lock Manufacturers, for improvements in locks and latches. Dated Feb. 27, 1883.
- „ 1057. H. Coley, of Mansion House Chambers, Queen Victoria-street, London, Engineer, for improvements in gas valves. Dated February 27, 1883.
- „ 1064. W. Brierley—a communication from R. Tungler, of Goerlitz, Prussia, for improvements in apparatus for heating air for warming buildings and other uses. Dated February 27, 1883.
- „ 1072. T. S. G. Kirkpatrick, of the Oxford and Cambridge Club, Pall Mall, Westminster, London, for improved apparatus for basting meat. Dated Feb. 27, 1883.
- „ 1100. C. A. Wheeler, of Swindon, Wiltshire, Gentleman, for a new or improved weather bar for the exclusion of rain at the foot or sill of doors and casements in exposed aspects. Dated March 1, 1883.
- „ 1103. T. Wrigley, of Chancery-lane, London, for improvements in the method of manufacturing “eage meat safes,” and in the means employed therefor. Dated March 1, 1883.
- „ 1114. W. Cook, of Headless Cross, Worcestershire, Tool Maker, for improvements in egg cups. Dated March 1, 1883.
- No. 1124. A. Burdess, of Coventry, for improvements in the mechanism for controlling the steering gear of, and applying brake power to velocipedes. Dated March 2, 1883.
- „ 1126. J. Beech, of Blakenhall, Wolverhampton, Foreman in the employment of Messieurs W. Lea and Company, of the Bloomsbury Foundry, Wolverhampton, for improvements in brackets for the support of rods or rails and other articles. Dated March 2, 1883.
- „ 1129. J. D. Ellson, of Coventry, for an improvement in velocipedes. Dated March 2, 1883.
- „ 1131. J. B. Adams and J. Telford, both of Liverpool, for improvements in the means of and apparatus for balancing, securing, and fastening sliding window sashes. Dated March 2, 1883.
- „ 1134. H. J. Davey, of 76, Disraeli-road, Putney, London, for improvements in velocipedes. Dated March 2, 1883.
- „ 1153. A. Varah, of Sheffield, for improvements in attaching door knobs to their spindles. Dated March 3, 1883.
- „ 1154. R. E. Cox, of High Holborn, London, Architect, for improvements in smokeless stoves, and in the application of fuel to the same. Dated March 3, 1883.
- „ 1162. J. H. Adams, of 34, Fullerton-road, Wandsworth, London, for improvements in bicycles, part of which are applicable to other purposes. Dated March 5, 1883.
- „ 1164. R. E. Sawtell, of 87, Boden-street, Sheffield, Saw Pierce, for improvements in the manufacture of the handles of fish and other table knives and forks. Dated March 5, 1883.
- „ 1166. A. Elliott, of 42, Aden Grove, Stoke Newington, London, for an improved device or apparatus upon which to hang coats or other like articles. Dated March 5, 1883.
- „ 1170. G. W. von Nawrocki—a communication from G. Haunhorst, of Osnabrück, Germany, for improvements in machines for stitching books, and in appliances for making fasteners. Dated March 5, 1883.
- „ 1183. J. Collett, of Olton, Warwickshire, Commercial Traveller, for an improvement or improvements in the joints of perambulator and carriage-hoods. Dated March 5, 1883.
- „ 1195. J. McLean, of Belfast, Ireland, for an improved steam smoothing iron for laundry purposes. Dated March 6, 1883.
- „ 1200. H. Markham, and T. Brettell, both of Birmingham, for certain improvements in lamps for velocipedes, and in the mode of connecting the same to the shafts thereof. Dated March 6, 1883.
- „ 1203. H. H. Lake—a communication from M. A. Howell, junior, of Chicago, Illinois, United States, Gentleman, for improvements in the manufacture of files, taps, dies, and other cutting tools, and in apparatus therefor. Dated March 6, 1883.
- „ 1204. W. R. Lake—a communication from A. S. Adams, of Boston, Massachusetts, United States, for improvements in tongs chiefly designed for domestic purposes. Dated March 6, 1883.
- „ 1213. T. Bradford, of Manchester, for improvements in apparatus or fittings to be applied to baths. Dated March 7, 1883.
- „ 1239. S. Low, junior, B.A., Cantab, F.M.S., of 4, Great James-street, Bedford-row, London, for a new or improved fresh air injector, or down-cast water-tight ventilator. Dated March 7, 1883.
- „ 1246. F. C. Glaser—a communication from Mrs. Emilie Weiss, of Breslau, Germany, for improvements in apparatus for darning fabrics and for producing a running stitch thereon. Dated March 8, 1883.

- No. 1251. J. Hall, of Wigton, Cumberland, for improved driving apparatus for tricycles and other velocipedes. Dated March 8, 1883.
- „ 1252. E. Hale, of Liverpool, for improvements in bale ties or bands, iron hoop fencing, and other articles or structures formed of hoop iron or steel. Dated March 8, 1883.
- „ 1261. T. Sidaway, of the firm of T. and S. Sidaway, of Quarry Bank Works, Brierly-hill, Staffordshire, Manufacturer, for improvements in all steel open socket shovels. Dated March 8, 1883.
- „ 1264. J. Tuckett, and E. Tuckett, both of Paul-street, Exeter, Devon, for an improved automatic gas regulator. Dated March 9, 1883.
- „ 1265. T. C. Olney, of Manchester, for improvements in the construction of hot water apparatus for heating buildings. Dated March 9, 1883.
- „ 1271. C. K. Lawton, of Newton Heath, Manchester, Sanitary Inspector, for improvements in receptacles used in what are known as "sanitary closets," and also in the construction of such closets aforesaid. Dated March 9, 1883.
- „ 1279. J. Darling, of Glasgow, for a new or improved cooking utensil, specially applicable to the cooking of eggs, but which may also be applied for cooking other articles of food. Dated March 10, 1883.
- „ 1282. G. E. Mineard, of Kensington, and T. Crapper, of Chelsea, both in London, for improved means for ventilating house drains, and warming houses. Dated March 10, 1883.
- „ 1283. C. Neil, of Sheffield, for improvements in adjustable spanners. Dated March 10, 1883.
- „ 1295. A. R. Mohison, of Swansea, Glamorganshire, Science Teacher, for improvements in electrical apparatus for igniting inflammable gases, and for other purposes. Dated March 12, 1883.
- „ 1297. W. Ashton, of Manchester, for improvements in the construction of braiding machines. Dated March 12, 1883.
- „ 1301. R. Clayton, of the firm of E. Sheldon and Company, of Deepfields, near Bilston, Staffordshire, Hollow-ware Manufacturers, for improvements in the method of forming cast metal sockets employed to hold tubular handles in such sockets, such improvements being applicable in the case of cast-iron saucepans and other hollow-ware, and generally where tubular handles are required to be fixed to cast-metal utensils or articles. Dated March 12, 1883.
- „ 1302. R. Whitson, of Wolverhampton, Architect, for improvements in fastenings for doors, windows, and shutters. Dated March 12, 1883.
- „ 1305. W. Churchill, of 26, Royal-road, London, for improvements in sewing machines. Dated March 12, 1883.
- „ 1310. F. M. Wright, of Haileybury College, Hertfordshire, for improvements in bicycles. Dated March 12, 1883.
- „ 1316. G. Clayforth, of 29, Tyrwhitt-road, St. John's, Kent, for an improved domestic appliance for cutting beans, peel for marmalade, and other edibles. Dated March 12, 1883.
- No. 3990. E. Tomlinson, of 58, Holborn-viaduct, London, for improvements in apparatus to facilitate the lighting of fires, and in fire-places and grates, chimneys, chimney-tops, and in apparatus combined therewith for increasing draft, preventing smoke, and economising fuel. Dated August 19, 1882.
- „ 4002. R. W. Crabtree, of Leeds, Ironfounder, for improvements in kitchen ranges or cooking ranges. Dated August 21, 1882.
- „ 4026. C. G. Beddoe, of Lambeth-read, London, for improvements in skates. Dated August 22, 1882.
- „ 4062. H. J. Haddan—a communication from J. A. Doering, of Leipzig, Saxony, for improvements in sewing machines. Dated August 24, 1882.
- „ 4063. J. Cavargna, of Manchester, Restaurater, for improvements in apparatus for retaining heat, warming food, and smoothing fabrics, and in artificial fuel therefor applicable for other uses. Dated August 24, 1882.
- „ 4074. D. Jones, of 1, Dunluce-street, Walton, near Liverpool, for an improved system of heating baths of dwelling-houses or baths for private use. Dated August 25, 1882.
- „ 4120. R. W. Raphael, of Balnamore, Ballymoney, Antrim, Ireland, for an improved self-indicating tea or coffee urn, heating jacket, and feed-kettle combined. Dated August 29, 1882.
- „ 4138. G. Nobes, of 27, Dudley-grove, Harrow-road, Paddington, London, Sanitary Engineer, for improvements in deodorising and disinfecting apparatus. Dated August 30, 1882.
- „ 4153. E. Edwards, a communication from J. A. Wilmot, of Riverside, in the province of New Brunswick, for an improved carpet fastener. Dated August 31, 1882.
- „ 4165. W. R. Lake—a communication from E. F. Osborne, of St. Paul, Minnesota, United States, for improvements in and relating to steam and hot-water apparatus for supplying heat to and utilizing, measuring and regulating the same in dwelling-houses or other buildings. Dated August 31, 1882.
- „ 4193. W. H. Beck—a communication from L. Chosson, of Boulevard de Strasbourg, Paris, Machinist, for a new or improved socket machine for cutting, pleating, and sewing the linings of hats. Dated September 2, 1882.
- „ 4200. G. S. Kelsey, of 13, Temple Street, Birmingham, Auctioneer, for improvements in handles for bicycles, tricycles, or other machine or tool handles. Dated September 4, 1882.
- „ 4232. J. Hudson, of Bolton, Lancashire, Joiner, for improvements in apparatus for holding and releasing cords for venetian and roller blinds and other like purposes, and in roller blind furniture. Dated September 6, 1882.
- „ 4315. M. J. O'Riordan, of Cork, for improvements in boilers or apparatus for heating water, cooking, or other purposes. Dated September 11, 1882.
- „ 4328. W. Bright, of Exeter, for an improved cock or tap. Dated September 12, 1882.
- „ 4337. J. W. Shepherd, and W. Ayrton, both of the Gorebrook Iron Works, Longsight, and S. Hallam, of Manchester, Engineers, for improvements in thread winding machines. Dated September 12, 1882.
- „ 4353. H. Pearce, of 5, Lidlinton-place, Harrington-square, London, Metal Worker, for improvements in the apparatus for opening and closing and securing fanlights, casements, sashes, and lantern lights. Dated September 13, 1882.

Letters Patent have been issued for the following:—

- No. 3979. W. S. Lewis, of Wolverhampton, Velocipede manufacturer, for improvements in the driving mechanism of tricycles and other velocipedes and manumotive vehicles having two driving wheels upon one axle. Dated August 19, 1882.

- No. 4369. W. A. MacLeod, of Birkenhead, Cheshire, for improvements in and relating to window sash fasteners. Dated September 14, 1882.
- „ 4385. T. J. Sloan, of 75, Rue de Paris, St. Maude, France, Civil Engineer, for improvements in nails and screws, and in the manufacture of nails, screws, bolts, and other like articles, and in the machinery to be employed in the said manufacture. Dated September 14, 1882.
- „ 4414. E. Marshall, of Birmingham, Mechanical Engineer, for improvements in tricycles, and other velocipedes. Dated September 16, 1882.
- „ 4420. M. Merichenski, of Stainsby-road, Poplar, London, for improvements in or connected with gasaliers, chandeliers, and electroliers, applicable also to the raising and lowering of other sliding appliances. Dated September 16, 1882.
- „ 4430. J. Imray—a communication from R. H. Lecky and J. Hay, both of Pittsburg, Pennsylvania, United States, for improvements in water-closets and in valves for these and other services. Dated September 18, 1882.
- „ 4457. J. Lucas, of Birmingham, for improvements in connecting lamps to the shafts of bicycles, tricycles, and other velocipedes, and to other shafts. Dated September 19, 1882.
- „ 4499. B. Hague, of Nottingham, for improvements in stitching machines. Dated September 21, 1882.
- „ 4510. J. Imray—a communication from R. Ditmar, of Vienna, for improvements in lamps burning mineral oils. Dated September 21, 1882.
- „ 4705. T. A. Brown, of Bude-lodge, South Norwood-hill, Surrey, for improvements in the manufacture of vessels for domestic use, the contents of which are required to be kept at a temperature higher than that of the atmosphere. Dated October 3, 1882.
- „ 4790. G. W. Quartremaine, of Stratford-on-Avon, Artist, for improvements in velocipedes. Dated October 7, 1882.
- „ 4811. A. J. Boulton—a communication from G. R. Elliott, of Boston, and J. M. Winslow and T. E. Clary, both of Norwood, both in Massachusetts, United States, for improvements in door stops or checks. Dated October 10, 1882.
- „ 4837. C. Truman, of Birmingham, for improvements in the construction of vehicles propelled by human force. Dated October 11, 1882.
- „ 4912. T. F. Simmons, of Ardencote, Thornhill-road, Croydon, Traveller, for improvements in perambulators. Dated October 16, 1882.
- „ 4995. T. Kay, of Stockport, Cheshire, Chemist, for improvements in apparatus for warming and heating rooms and places, and in appliances connected therewith. Dated October 20, 1882.
- „ 5549. E. Baldwin, of Stourport, for an improved handle for saucepans and other culinary or similar vessels. Dated November 22, 1882.
- „ 5778. J. D. Sprague, of Beulah-hill, Upper Norwood, for improvements in window sash fastenings. Dated December 5, 1882.
- „ 6088. W. Cotton, of Loughborough, Machinist, for improvements in rotary knitting machines. Dated December 20, 1882.
- „ 86. J. Imray—a communication from R. Leavitt, of Boston, Massachusetts, Machinist, and E. Flather, of Bridgeport, Connecticut, both in the United States, for improvements in sewing machines. Dated January 6, 1883.

- No. 150. W. R. Lake—a communication from N. A. Baldwin, of Milford, Connecticut, United States, for improvements in spooling machines, parts of which improvements are applicable to other machines. Dated January 10, 1883.
- „ 267. J. Adams, of Philadelphia, Pennsylvania, United States, Weaver, for improvements in knitting machines. Dated January 17, 1883.

PATENTS WHICH HAVE BECOME VOID:—

- No. 492. J. Imray—a communication from La Société Clement et Cie, an incorporated Company, of Paris, for improvements in bicycles and velocipedes. Dated February 4, 1880.
- „ 503. W. F. Simons, of Edgbaston, Warwickshire, Merchants' Clerk, for new or improved apparatus or mechanism for setting swing looking-glasses in any required position, and for setting windows, ventilators, fan-lights, and other swinging articles. Dated February 5, 1880.
- „ 518. F. W. Ticehurst and J. Cheshire, both of Birmingham, for an improved alarm apparatus. Dated February 5, 1880.
- „ 570. W. Tatham, of the firm of Amos Tatham and Son, of Ilkeston, Derbyshire, for improvements in the manufacture of latch needles. Dated February 10, 1880.
- „ 610. J. W. Lawrence, of St. Margaret's Court, Borough High-street, London, for improvements in chimney cowls. Dated February 11, 1880.
- „ 634. W. Bradley, of Sheffield, for improvements in the means and apparatus for the manufacture of spikes, nails, and similar articles. Dated February 13, 1880.
- „ 643. H. J. Scott, of Newcastle-upon-Tyne, Safe and Lock Engineer, for improvements in safes, strong-room doors, and their fastenings. Dated February 14, 1880.
- „ 653. D. Mackay—a communication from J. Mackay, Engineer, Melbourne, Australia, for a new or improved self-acting washing machine. Dated February 14, 1880.
- „ 679. J. Mallol, of Birmingham, for improvements in cruets. Dated February 16, 1880.
- „ 702. G. K. Hannay, of Haverthwaite, Lancashire, for improvements in domestic fire-grates. Dated February 17, 1880.
- „ 719. J. E. Dudley, of Oldham, Lancashire, for improvements in the construction of taps and valves. Dated February 18, 1880.
- „ 732. T. Williams, junior, of West Smithfield, London, Engineer, for improvements in machinery or apparatus for cutting or mincing sausage meat and other substances. Dated February 19, 1880.
- „ 735. W. B. Wilkinson, of Kingston-upon-Hull, Brass Founder, for improvements in apparatus used with gas or other lights for holding the globes or other glasses used therewith. Dated February 19, 1880.
- „ 772. C. R. Matthews, of Drury-lane, London, Gas Engineer and Lamp Manufacturer, for improvements in fixing, connecting, and disconnecting gas pendants, brackets, pillar or ground connections, especially adapted for outside reflecting lamps. Dated February 21, 1880.
- „ 793. K. H. Cornish, of 16, Heaton Villas, Peckham Rye, London, Consulting Surgeon, for improvements in bobbins, reels, spools, and winders. Dated February 23, 1880.

No. 817.	W. Hillman, of Coventry, Machinist, for improvements in velocipedes. Dated February 24, 1880.
„ 833.	A. H. Vernon, of St. John's, Hackney, London, for improvements in taps or cocks for liquids, steam, air and other fluids. Dated February 25, 1880.
„ 894.	C. J. Waddell, of Manchester, Merchant, for improvements in cocks or taps for fluids. Dated March 1, 1880.
„ 897.	R. Smith, of Edinburgh, Foreman, Brass Finisher, for new or improved water supplying and regulating apparatus for waterclosets and other analogous purposes. Dated March 1, 1880.
„ 902.	J. C. Mewburn—a communication from C. T. Seidel, of Dresden, Saxony, Baker, for improvements in baking ovens. Dated March 1, 1880.
„ 908.	B. Williams, of 58, Cowbridge-road, Engineer, and D. L. Lougher, Gentleman, of Manor House, both in Cardiff, Glamorganshire, for improvements in or applicable to driving mechanism for bicycles and other velocipedes. Dated March 1, 1880.
„ 945.	W. A. Barlow—a communication from A. Monchablon, of Paris, for improvements in the manufacture of felted thread, and in machinery therefor. Dated March 3, 1880.
„ 521.	W. Garrad, of Birmingham, Merchant and Manufacturer, for improvements in the construction and manufacture of coffin handles, door and other handles, manger rings, door knockers, and other like articles. Dated February 9, 1876.
„ 577.	M. H. Pearson, of Leeds, for improvements in sewing machines. Dated February 12, 1876.
„ 583.	J. W. Brown, of Leamington, Warwickshire, Commercial Traveller, for improvements in or additions to kitcheners and other cooking ranges. Dated February 12, 1876.
„ 618.	H. J. Timberlake, of Maidenhead, Berkshire, Bicycle Manufacturer, for an improvement applicable to velocipedes. Dated February 15, 1876.
„ 638.	J. Dunbar, of Glasgow, Engineer, for improvements in bush keys or tools for fixing or removing screw bushes, such as are applied to casks. Dated February 16, 1876.
„ 648.	H. P. Fenby, Mechanical Engineer, and A. Greenwood, Mechanical Engineer, both of Leeds, for improvements in cut nail machinery. Dated Feb. 16, 1876.
„ 747.	J. Walker, of Birmingham, Hardware Merchant and Manufacturer, for improvements in door locks and latches. Dated February 23, 1876.
„ 767.	T. Crookes, of Sheffield, for improvements in sporting and other pocket knives. Dated February 24, 1876.
„ 864.	A. M. Clark—a communication from E. C. Angell, of New York, United States, for improvements in heat radiators. Dated March 1, 1876.

SPECIFICATIONS PUBLISHED DURING THE MONTH.

No.		Postage 1d. each extra.	s. d.
No. 255.	M. H. Pearson, sewing machines	0 2	
„ 2961.	J. Harsant, apparatus for flushing water-closets, traps, and urinals	0 2	
„ 3011.	S. Grafton, lamps, &c. . . .	0 2	
„ 3080.	J. A. and J. Hopkinson, stop-valves	0 6	
„ 3095.	H. Conolly and A. E. Hubert, overflows of valve closets	0 6	
„ 3151.	F. Wirth, sewing machines	0 6	
„ 3211.	E. A. Brydges, regenerative gas heating arrangements for heating water or air, &c. . . .	0 4	
„ 3229.	U. Bromley, G. Crowe, and W. James, cisterns or flushing apparatus for water closets, &c. . . .	0 6	

No. 3230.	W. T. Shaw and W. Sydenham, tricycles, bicycles, &c. . . .	0 10
„ 3251.	A. M. Clark, ovens for baking bread, &c. . . .	0 6
„ 3254.	G. Kent, knife cleaning and polishing machines ..	0 6
„ 3280.	A. Wightman, taps and valves	0 2
„ 3287.	W. Cheyne, automatic apparatus for regulating the supply of gas to a gas flame, &c. . . .	0 6
„ 3288.	W. R. Lake, braiding-machines	0 6
„ 3299.	H. T. Harvey, securing globes to their galleries ..	0 2
„ 3324.	C. Portway, gas stoves. . . .	0 8
„ 3326.	F. Beauchamp, tricycles, velocipedes, &c. . . .	0 2
„ 3328.	C. W. Siemens, lamps	0 6
„ 3344.	W. S. Laycock, self-acting window blind apparatus	0 6
„ 3345.	J. E. Beal, attaching the bolsters and handles of cutlery	0 6
„ 3346.	W. R. Lake, sewing machines for boots and shoes ..	0 6
„ 3358.	A. W. White and J. H. Evans, bell traps for drains ..	0 2
„ 3363.	C. E. Gibson, hood joints of perambulators, &c. . .	0 6
„ 3368.	J. Erskine, apparatus for facilitating the slicing of bread	0 6
„ 3369.	J. B. Thomson, preventing accidental extinction of exposed gas lights, &c. . . .	0 2
„ 3371.	H. A. Williams, pulleys for window blind rollers, &c.	0 2
„ 3379.	J. Forbes, sewing machines, &c. . . .	0 2
„ 3381.	W. H. Beck, apparatus for extracting shuttles from sewing machines	0 2
„ 3386.	L. A. Groth, combination pocket knife, fork and spoon	0 2
„ 3390.	C. Keibel, candle holders	0 6
„ 3401.	H. J. Gehlsen, peeling machine	0 2
„ 3406.	H. Bottom and C. Rose, securing the handles of table cutlery, &c. . . .	0 2
„ 3425.	H. A. Cutler, ball valves	0 6
„ 3431.	H. Thisquen, safety locks	0 4
„ 3437.	D. R. Ashton, cocks and valves	0 4
„ 3442.	A. C. Wells and R. Wallwork, gas fittings	0 2
„ 3459.	A. and T. H. Dix, apparatus for checking cords of blinds, &c. . . .	0 6
„ 3461.	J. Shanks, valvular details of domestic apparatus for supply, &c., of water	0 6
„ 3471.	H. Fielding, knives and forks	0 6
„ 3482.	J. H. Black, locks	0 2
„ 3486.	J. Leather, ventilating appliances	0 6
„ 3511.	W. Wright, flush cisterns, &c. . . .	0 6
„ 3517.	W. Corliss, burglar proof safes. . . .	1 4
„ 3523.	D. and W. H. Thompson and W. J. Booser, regenerative gas burners for heating purposes. . . .	0 2
„ 3533.	W. Hunt, taps	0 6
„ 3535.	J. Hewitson and W. J. Napier, sewing needles ..	0 2
„ 3542.	B. Davies and J. Eckersley, machines for washing and rinsing fabrics	0 6
„ 3554.	J. L. Thomasson, ventilators	0 2
„ 3558.	J. S. Orton, velocipedes. . . .	0 4
„ 3561.	J. Imray, apparatus for drawing the tines of forks ..	0 2
„ 3599.	J. Darling, sewing machine needles, &c. . . .	0 6
„ 3600.	J. P. Dalby, tricycles, &c. . . .	0 6
„ 3607.	S. R. Smyth, production of light and heat	0 2
„ 3611.	A. Haley and A. C. Savage, automatic apparatus for regulating supply of gas, &c. . . .	0 4
„ 5320.	W. R. Lake, reeling of silk, cotton, or other thread. .	0 4
„ 5407.	J. Wetter, filters	0 4

THE business carried on by the late Mr. J. Garlick, at 21, Clifton-street, and formerly by Messrs. Hesketh and Clegg, has been disposed of to Mr. W. Singleton, furnishing and general ironmonger and furniture dealer, 79 to 81, Poulton-street, Kirkham, and will be carried on under the management of his son, who valued for both parties.

ABSTRACTS OF SPECIFICATIONS.

Abstracts marked with a * relate to applications not proceeded with. The number of Views given in the Specification Drawings is stated in each case after the price; where none are mentioned the Specification is not illustrated.

*255. SEWING MACHINES: M. H. PEARSON, Leeds. [2.]—The needle bar of the straight needle is fitted in a slide, to which is given a radial reciprocating motion by a cam on the driving shaft, and a vertical movement is imparted to the needle bar through a heart cam attached to the side by a crank or cam arrangement. Other arrangements of parts are described, and Specifications 348 of 1879 and 3294 of 1880 are referred to. (January 18, 1882.)

3158. COOKING FOOD: G. W. VON NAWROCKI, Berlin. (C. Becker and J. Reunert, Berlin). [6d. 4 Figs.]—The articles of food are cooked in steam or water baths at predetermined temperatures. The compartments of the apparatus are made with insulating walls and covers, and are lined with a non-oxidisable metal, each compartment being provided with a hollow cover supplied with steam or water; steam is also supplied to metallic vessels placed inside, through a perforated bottom. (July 4, 1882.)

3230. TRICYCLES, BICYCLES, &c.: W. T. SHAW, Surbiton, and W. SYDENHAM, London. [10d. 21 Figs.]—Consists in a method of applying gearing to the driving parts whereby increased power is obtained and applied in an advantageous manner to the propulsion of such machines. (July 7, 1882.)

3299. SECURING GLOBES TO THEIR GALLERIES: H. T. HARVEY, London. [2d.]—A volute or conoidal shaped cam is fixed concentrically to a spindle passing through a piece of hollow shaped metal on one of the three arms. (July 12, 1882.)

3303. SECONDARY VOLTAIC BATTERIES: F. W. DURHAM, New Barnet, Herts, and P. Ward, London. [4d. 1 Fig.]—The lead or other metal drawn into the form of "pinion wire" is wound lengthwise or crosswise, or both, on a rectangular frame.

*3309. POLES AND NETS FOR LAWN TENNIS, CRICKET, &c.: H. RICHARDSON, Liverpool. [4d.]—Relates to the construction of the poles, to methods of straining or coiling the net in the centre, to side strainers and supports for the poles, to regulating the height of the centre of the net, and to a method of arranging the cords or lines of the nets, and to the use, or partial use, of wire or chains for such cords. (July 12, 1882.)

3324. GAS STOVES: C. PORTWAY, Halstead, Essex. [8d. 4 Figs.]—The heat from the combustion of ordinary burners passes through or between the parts of a perforated block or loose pieces of asbestos, and thence into a spiral chamber or a series of chambers formed of brickwork. A tube open at both ends passes by preference through the centre of the stove for the passage of the ordinary air of the apartment. The parts for the combustion of the gas and air may be made to swing on suitable joints. (July 13, 1882.)

3325. FOLDING BEDSTEADS WITH FLEXIBLE AND ELASTIC SACKING: A. C. HENDERSON, London. (E. F. Boyer, Paris). [6d. 6 Figs.]—A characteristic feature is the rendering of the cloth sacking or other bed bottom elastic by stretching it by a combination of spiral springs and rollers placed at the foot and head of the bed. (July 13, 1882.)

3326. TRICYCLES, VELOCIPEDES, &c.: F. BEAUCHAMP, Edmonton. [2d.]—Relates to effecting the steerage, to providing a rocking seat, and to the propelling mechanism. (July 13, 1882.)

3327. TREATMENT OF SHEET METAL FOR OBTAINING ORNAMENTAL EFFECTS: H. J. HADDAN, London. (K. H. Schmid, Bern, Switz.). [2d.]—The object is to produce a good substitute for mother-of-pearl incrustations in wood. (July 13, 1882.)

3333. PURIFYING METALS: A. M. CLARK, London. (E. Edwards, Paris.). [4d.]—Consists in annealing metals in a current of hydrogen gas, purified by one or more washings, in order to ex-

tract from the said metals all the metalloids (such as sulphur, phosphorus, arsenic, nitrogen, silicon, &c.), which are by their nature prejudicial to the good quality of the metal. (July 13, 1882.)

3254. KNIFE CLEANING AND POLISHING MACHINES: G. KENT, London. [6d. 11 Figs.]—The rollers on which the handles of the knives rest whilst being cleaned (*vide* Specification 100 of 1870) is made of elastic material, an elastic stop being provided for the back of the handle to rest against. The standard, which carries the roller support projects inward into the interior of the casing, and is divided by a longitudinal slit into two parts, between which the knife blade passes. (July 8, 1882.)

3368. APPARATUS FOR FACILITATING THE SLICING OF BREAD: J. ERSKINE, Newton Stewart, N.B. [6d. 7 Figs.]—Relates to an apparatus to cut up loaves of bread, &c., into slices of regulated thickness with rapidity and precision. (July 15, 1882.)

3373. SAWING METALS: J. H. JOHNSON, London, (H. Tuyssuzian, Paris.). [6d. 5 Figs.]—The oscillating levers, described in Specification 2365 of 1866, work in hollows or recesses formed in the body of the supports. The teeth of the saws are formed and "set" before tempering the saw. (July 15, 1882.)

*3374. WIRE NETTING FOR FENCING, &c.: D. PERES, London. [6d. 7 Figs.]—A piece of wire is bent to form part of a mesh of netting, and has an elongated eye at each extremity, and a central loop. These pieces are combined together to form the netting. (June 15, 1882.)

*3376. LAWN TENNIS RACQUETS: A. J. ALTMAN, London. [2d.]—The frame is lined with cane, india-rubber, or other suitable equivalent. (July 15, 1882.)

*3379. SEWING MACHINES, &c.: J. FORBES, New York, U.S.A. [2d.]—Consists of a machine which is capable of being applied, by the substitution of different sets of cams, to either plain stitching or hem-stitching, the hem-stitch being produced by means of a combination of lock and chain stitches. (July 17, 1882.)

*3386. COMBINATION POCKET KNIFE, FORK AND SPOON: L. A. GROTH. (F. Praunegger, Graz, Austria.). [2d.]—The fork handle slides into the hollow knife handle, both closing similarly with a spring, while the spoon is jointed and folded in such a manner as to form when closed a part of the knife. (July 17, 1882.)

3390. CANDLE HOLDERS: C. KEIBEL, Folsong, Germany. [6d. 7 Figs.]—The holder consists of fingers rising from a solid support, and having an inwardly tapering female screw in their interior. The candle is screwed into this holder. (July 17, 1882.)

*3413. PILLARS FOR METALLIC BEDSTEADS: J. JEFFRIES, Birmingham. [2d.]—Two or more tubes are combined or grouped together and fitted with the requisite corner blocks and mountings. (July 18, 1882.)

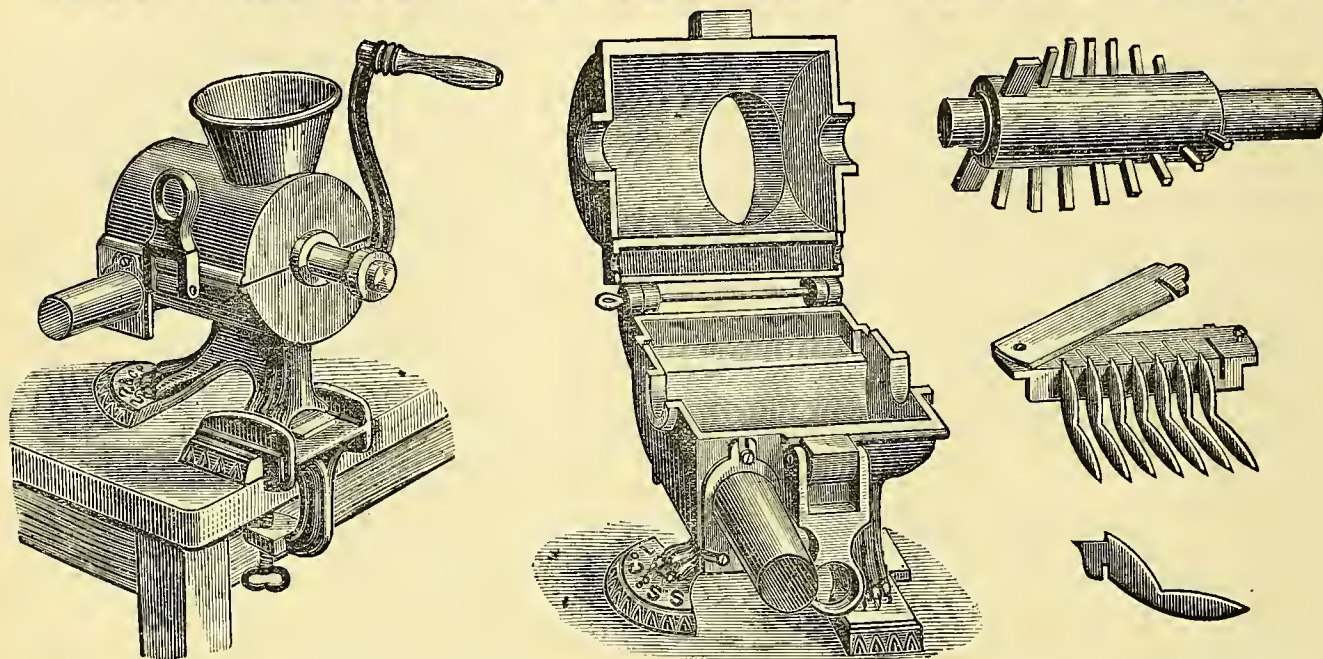
*3423. CONSTRUCTION OF WIRE FENCES: G. E. VAUGHAN, London. (C. E. Lesur, Paris.). [2d.]—The framework is composed of triangles embedded in the earth and overhanging the preserved ground, the spaces being filled in with wires in the ordinary manner. (July 19, 1882.)

3431. SAFETY LOCKS: H. THISQUEN, St. Petersburg. [4d.]—A combination of letters or figures are employed to indicate the position of the parts. (July 19, 1882.)

*3442. GAS FITTINGS: A. C. WELLS AND R. WALLWORK, Manchester. [2d.]—The joint plugs are grooved in such a manner, that, by turning the bracket into different angular positions, the quantity of gas consumed may be regulated. (July 20, 1882.)

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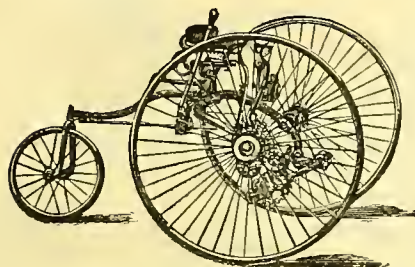
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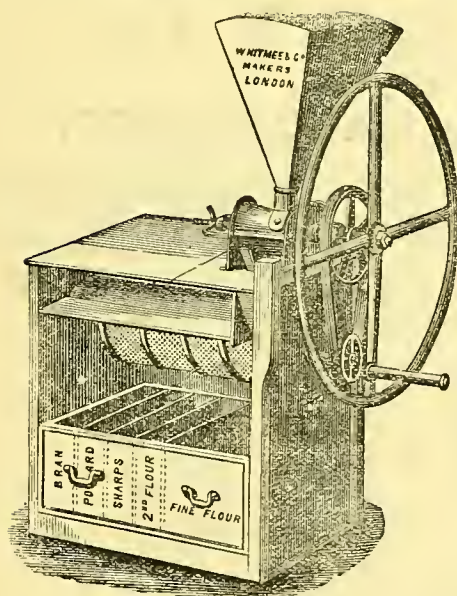
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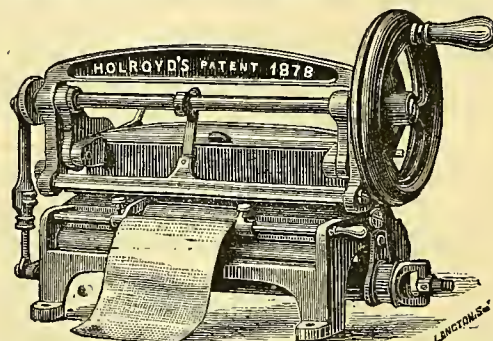
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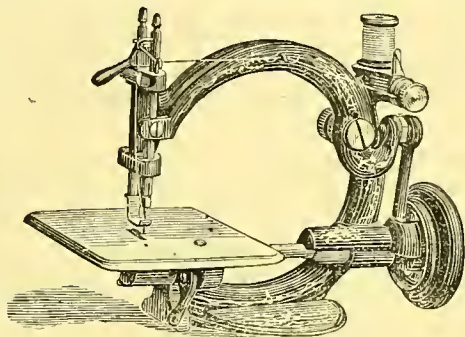
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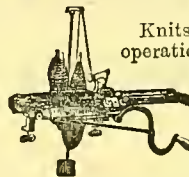
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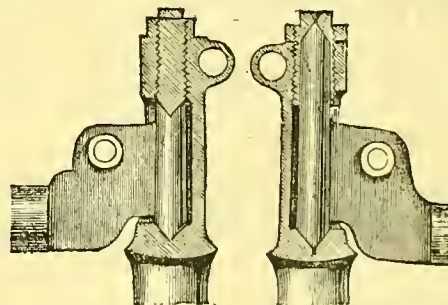
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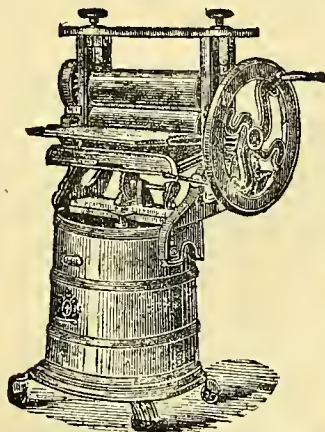
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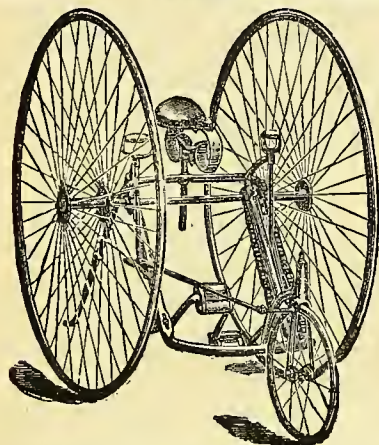
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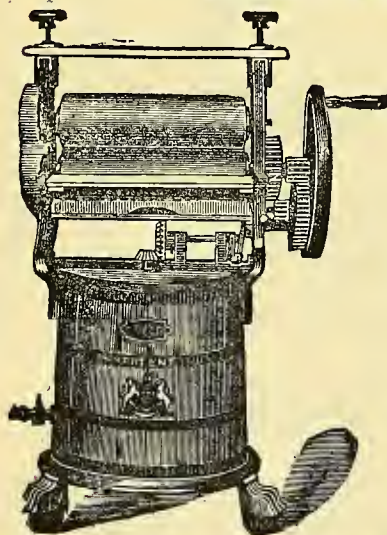
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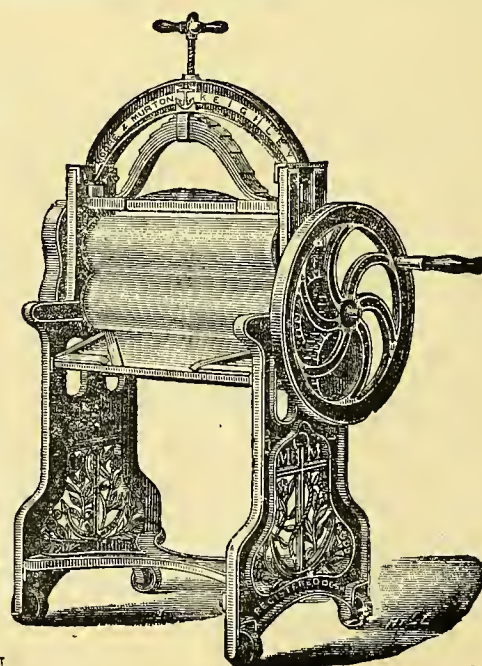
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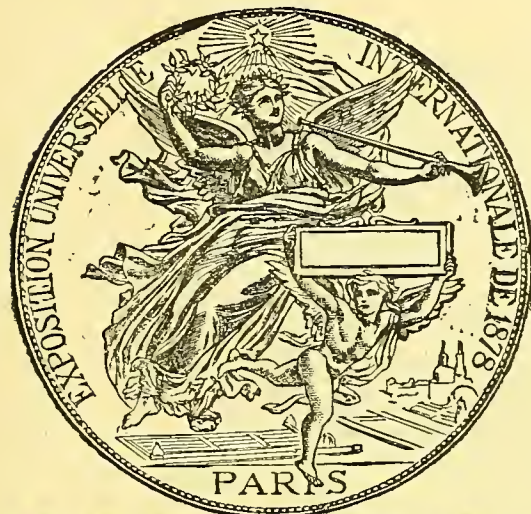
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Given to the Linen Thread Trade of the World.

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CABLE-TWIST SIX CORD,

On 1oz. SPOOLS for EXTRA LEATHER WORK.

Far stronger than Silk, and much cheaper.

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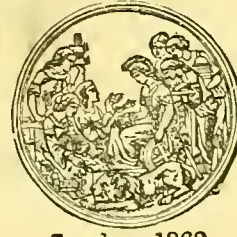
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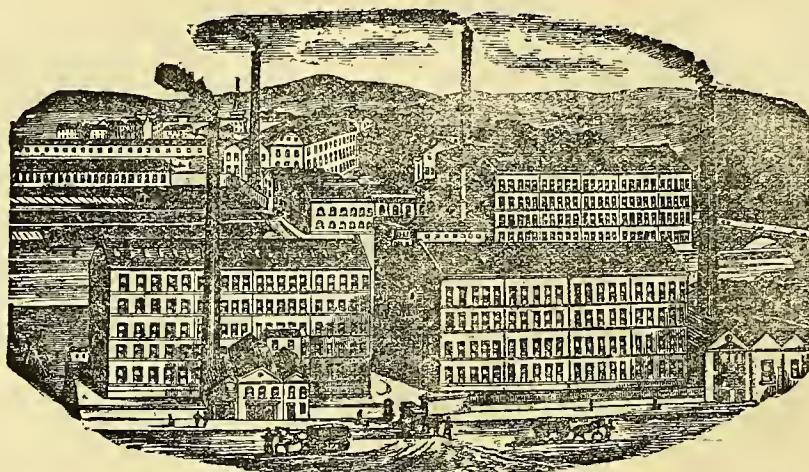


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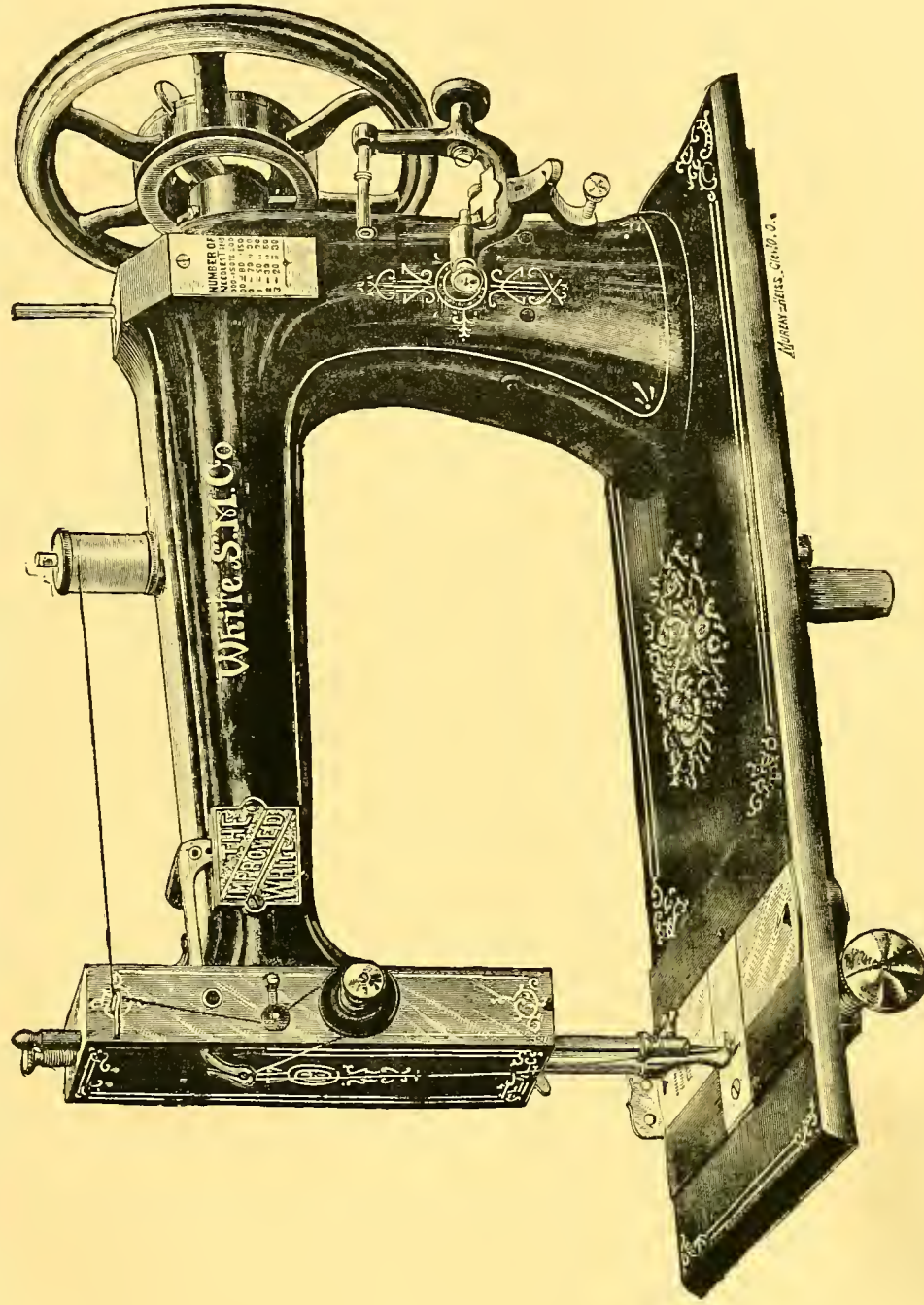
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NEW No. 12 MANUFACTURING MACHINE.

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Vol. XI., No. 157.

AUGUST 1, 1883.

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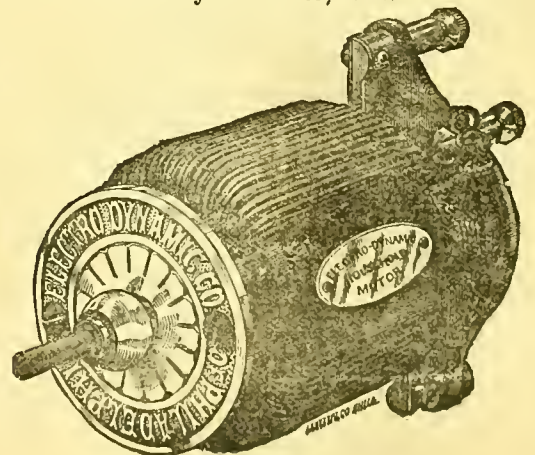
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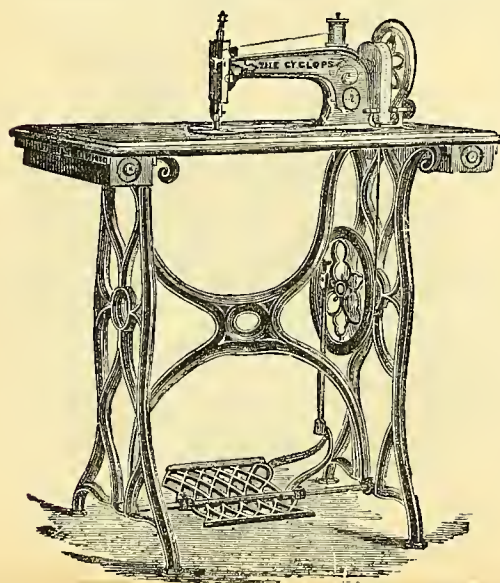
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These Machines are made from the Best Materials, and cannot be surpassed for excellency of finish and durability.

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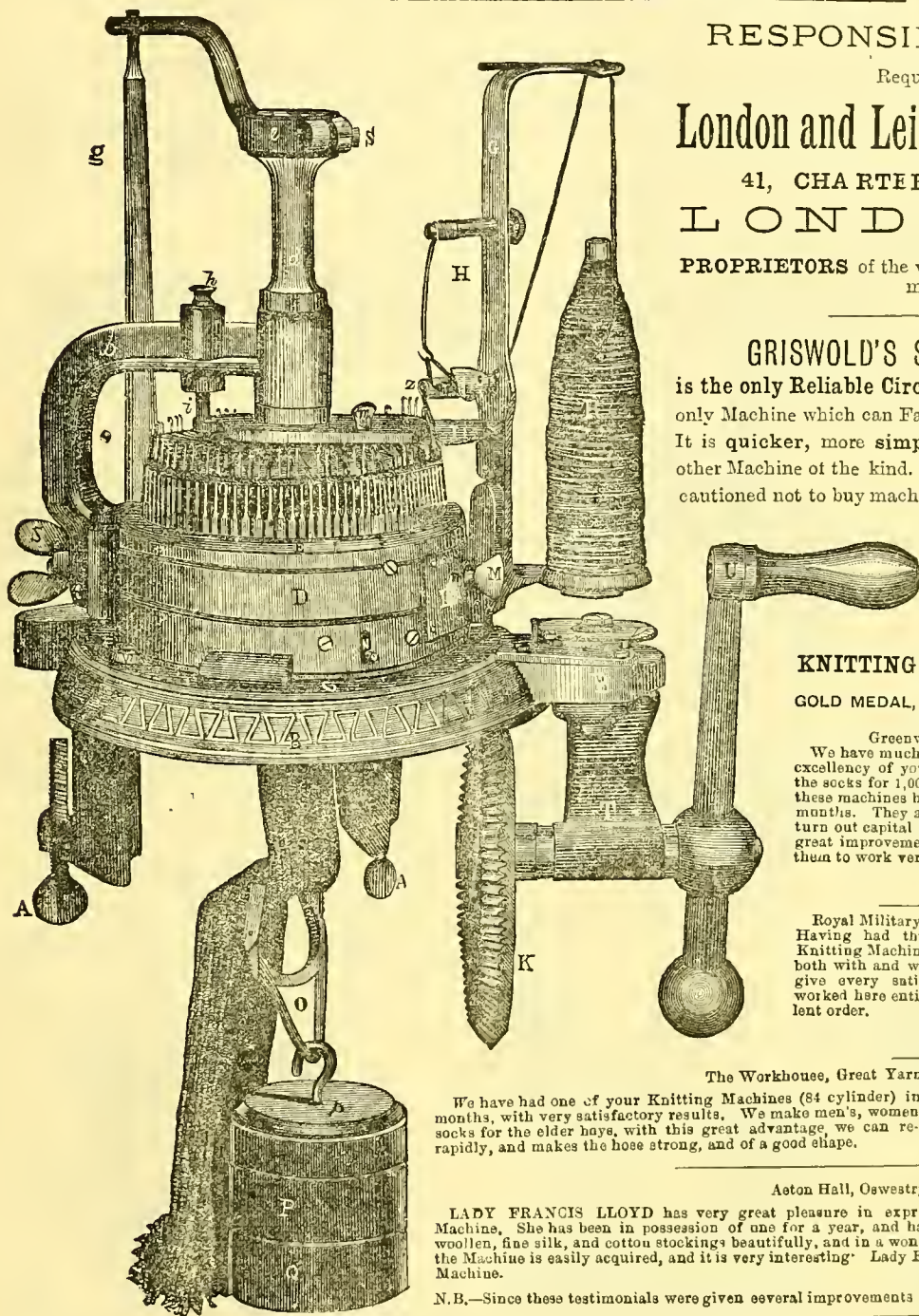
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Greenwich Hospital Schools, Jan 11th, 1881.

We have much pleasure in bearing testimony to the excellency of your Knitting Machines. The whole of the socks for 1,000 boys are knitted at the School and these machines have been in constant use for eighteen months. They are easily understood by the boys, and turn out capital socks. The Ribbing Attachment is a great improvement to the machine. We have found them to work very satisfactorily.

(Signed) E. M. ROE.
CHAS. BURNE Y.

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Having had three years experience with your sock Knitting Machines. I cannot speak too highly of them both with and without the Ribbing Attachment. They give every satisfaction, and, considering they are worked here entirely by boys, they keep in most excellent order.

(Signed) W. MACDONNELL,
Quartermaster.

The Workhouse, Great Yarmouth, January 8th, 1881.

We have had one of your Knitting Machines (84 cylinder) in use in our workroom about twelve months, with very satisfactory results. We make men's, women's, and girls' cotton ribbed Hose, also socks for the elder boys, with this great advantage, we can re-foot them when necessary. It work rapidly, and makes the hose strong, and of a good shape.

(Signed) E. S. BLYTH, Matron.

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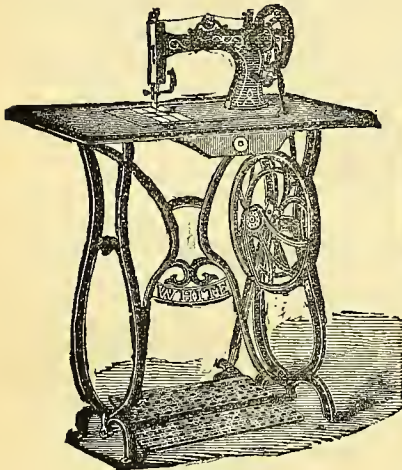
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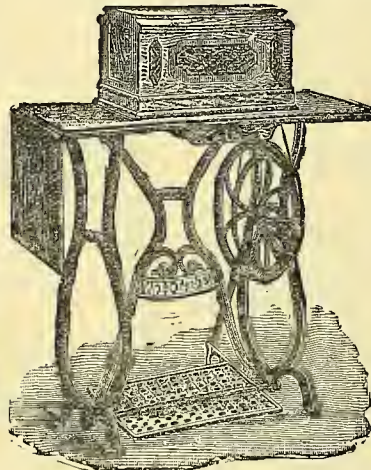
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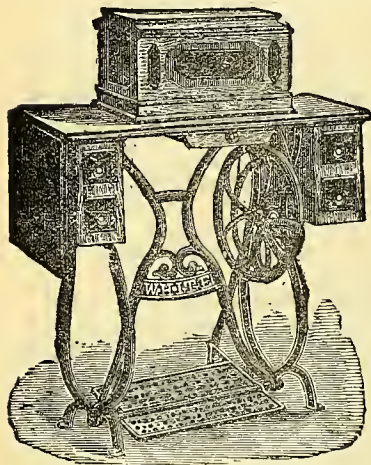
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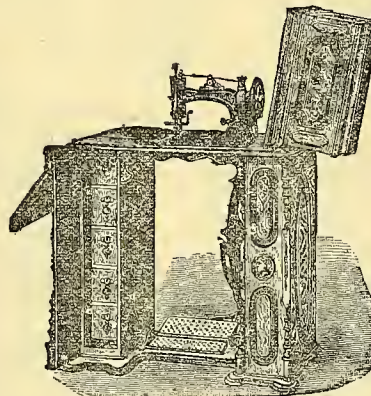
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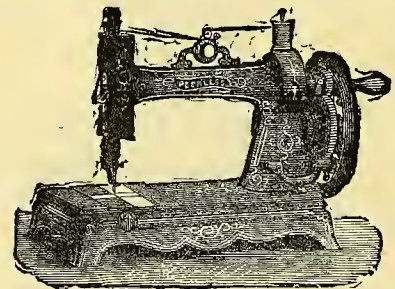
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New "Rotary Hook" Sewing Machine.

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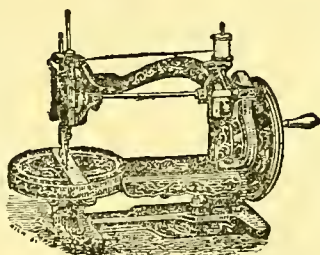


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THIS Machine has obtained the highest reputation and an enormous sale, both under its true name ("Raymond's"), and also as the "Weir 55s. Machine," &c. — (See caution below). It is durable, rapid, exceedingly simple, neat, not liable to get out of order, and warranted to sew from the finest muslin to the heaviest material.

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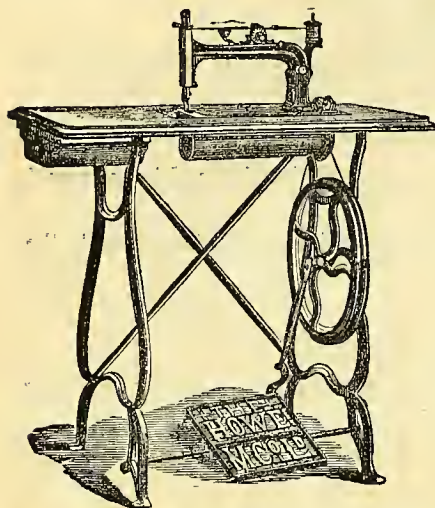
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Complete with all
Appliances from

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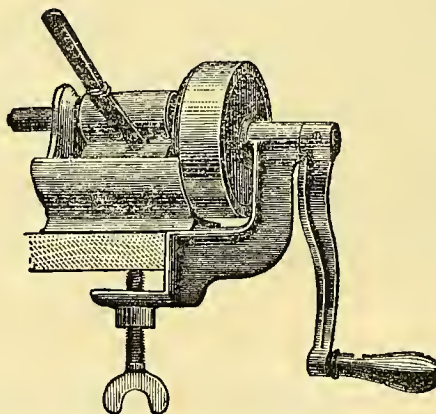
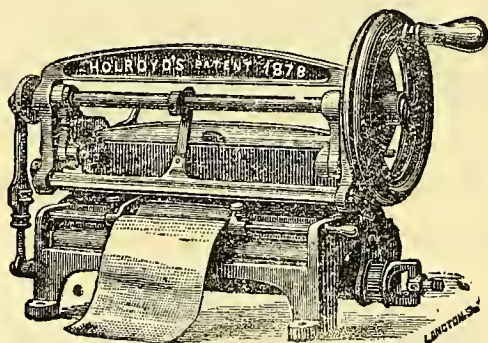
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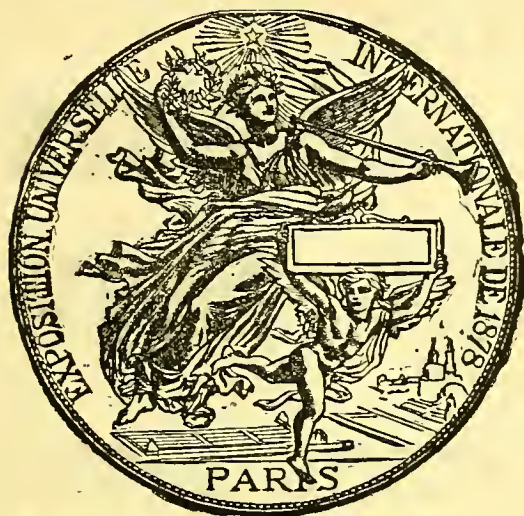


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Nos. 1 & 2 ... Price £6 10s., £7 10s.

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Every SINGER'S MACHINE

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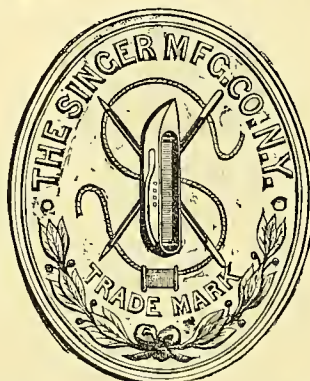
THE SINGER

MANUFACTURING COMPANY'S

TRADE MARK

as per the

ANNEXED SKETCH.



THIS TRADE MARK

is affixed

TO THE MACHINE

near the

BALANCE WHEEL,

and also cast

in each side of the Stand.

TO AVOID DECEPTION,
Buy No Machine
WITHOUT THE ABOVE TRADE MARK,
 AND SEE ALSO THAT THE COMPANY'S
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ARM OF THE MACHINE.

The Singer Manufacturing Company,

(Formerly I. M. SINGER & CO.)

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And 400 Branches in all the Principal Towns of Great Britain and Ireland.

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FINISHING COVERS.

IN answer to letters from sewing machine men for information on the finishing up of old and new tables and covers of sewing machines, I give the following reliable method as practised by cabinet makers and finishers of wood. The cleaning and polishing of sewing machine wood-work should depend on the mode in which the work was originally done up.

The method at present most generally adopted is French polishing, and in such cases, if the wood-work is in a bad state, but not stained, it will be sufficient to apply French polish. When, however, the work is stained, spotted, dented, dirty or greasy, in that case put plenty of rotten and pumice-stone on your work, with water enough to make it work easy. Rub until all marks and scratches are removed. Clean up the work with a piece of soft cotton dipped in sweet oil. Then finish up with hard oil or French polish.

ANOTHER METHOD

in use in all first-class piano and furniture factories is as follows: The same process will answer for any other piece of furniture by merely substituting for the scraping, where scraping is not practicable, a filling, properly coloured: First, give the work three coats of scraping or No. 2 furniture varnish, allowing each coat to become perfectly hard before applying the next; then scrape off the varnish with a steel scraper, properly sharpened on an oil-stone, and in scraping off the varnish be careful not to cut into the wood, but merely remove the varnish from the surface, leaving the pores filled. Smooth with No. 1 sand paper, and the work will be ready for the polishing varnish, four coats of which must be put on, allowing each coat to harden. To determine the proper time required for the hardening, I would say that one coat will not be ready for the next until it is so hard that you cannot make an impression on it with your thumb-nail. The four coats having been put on, and the work having stood a few days—and the longer the better—rub down with fine-ground pumice-stone and water, applied with a woollen rag. The work must be rubbed until all lumps and marks of the brush are removed; wash off with a sponge and dry with a chamois-skin; let the work stand in the open air for a day or two, taking it into the shop at night. The work should now receive two coats more of polishing varnish and a second rubbing, after which it is ready for polishing. It is not necessary to go through with all this work for common sewing machine tables.

Most of the covers and tables can be fixed up with hard oil finish or good varnish.

Before applying oil finish or varnish to the work, clean it with pumice stone to get all the dirt and grease off. To fix up tables and covers keep on hand varnish, oil finish, a good filler and pumice-stone.—*Sewing Machine News.*

THE MAKING OF A KNIFE.

HOW few of the millions of people who handle a knife or fork, or use a pocket-knife, have any idea as to how they are made. They are so accustomed to have the finished article in their hands they scarcely ever give it a thought in the way of wondering how it is made. Even the utility of a knife or a fork or a spoon is forgotten in the

familiarity of the articles; yet imagine the world disestablished for a single day of its knives, its forks, and its spoons! People never know the value of anything until they have lost it. The lesson would be equally clear in this case. The world would then be glad to recognise the rightful position of these articles in the roll of domestic utilities. Fortunately, there is no fear of the faith of humanity being subjected to so severe a test, for of the making of knives and forks and spoons there is literally no end. Sheffield has been called "the city of knives and forks," to which title it adds that of the "Steelopolis of the world." A Sheffielder can be known anywhere at a distance. Watch at the *table d'hôte*, you will see one or two gentlemen lift up the knife and look at the name on the blade. These are Sheffielders. Watch the other, who in addition to examining the blade and the handle, passes his thumb over the edge of the knife in a way which makes your teeth chatter and suggests that he means to slice his fingers off. That gentleman is a cutler—he makes knives, and he takes such liberties with keen-edged blades as only cutlers can.

Come with us and see a spring knife made. By "spring" knife is meant a knife that shuts with a spring, to go in the pocket. In the cutlery trades, more perhaps than any other branch of local industry, the principle of division of labour is fully carried out. Here is an ingot of steel, which has been rolled to the required size. It is first handed to the "forger," who works in a small room, containing a fireplace or, as he calls it, a hearth, a trough to hold water, another trough to hold the small coke used for the fire, an anvil, hammer, pincers, and various other tools. Watch our friend the forger, how deftly he handles his bar of steel. First he buries the end in the fire—which, by the way, is made of coke specially prepared—then he blows his bellows to raise the steel to the proper heat. This is a delicate operation, which involve certain serious risks. Steel overheated is what is technically termed "burnt"—it is made useless for cutlery purposes. Then, if not sufficiently heated, it will not be soft enough to assume the shape which the forger desires. When heated according to the required extent, the end of the bar is laid on the anvil; the forger, with a few sharp strokes carefully yet vigorously dealt, fashions the bar into a blade of the shape desired, cuts it off, and again pushes the lessened bar into the coke for the renewal of the process. The narrow end of the blade—that which is attached to the handle—is termed the "tang," and when the blade and "tang" are formed the forger has done his part so far as we are concerned with him. Leaving him to heat his bar, and cut off fresh blades and tangs, let us follow the first which fell from his anvil.

It goes to the grinder—a great man in the cutlery capital. The grinder works in a building which is commonly called a "wheel," from the fact that the power is usually derived from a single wheel. Each separate shop is termed a "hull;" each separate working place a "trough." These grinding wheels are a sight peculiar to Sheffield; they can be seen under almost all conceivable circumstances. A stranger who visited Sheffield and strayed out into the suburbs, amid the beauties, say, of Endcliffe wood, might be surprised to hear a hissing sound which was clearly caused by the contact of metal with whirling machinery. Following his ears, he would come to a one-storied building, from which he would hear a confused noise, suggestive of something being subjected to grinding. He looks in at the open window, and sees one of the most interesting and characteristic sights of industrial Sheffield—

a grinder's hull, yellow with the particles thrown off from the stones on which the grinder is grinding his blades. At each stone, which, like the poet Campbell's Iser, is rolling rapidly, sits a grinder. The stone revolves towards him, and he holds the steel firmly to its edge, causing it to emit a shower of sparks, which falling among powder diabolically placed in the trough, cause one class of those trade outrages which so frequently deface Sheffield's industry. A grinder who incurs the displeasure of Mary Ann, and has powder placed in his trough, is generally blinded for life.

The "tangs" having been ground, together with one side of the blade, the blade has next to be marked, which necessitates its going to the marker's shop. Here we notice a coke fire prepared like that of the forger. On the fire is placed an iron tray, on which the blades to be marked are arranged. The marker blows his bellows, the fire heats up, and the blades begin to look red, though it is a dull red. In this way they are softened, and when they have become sufficiently soft, the marker takes his tongs, picks up a half-a-dozen, lays them carefully upon an anvil, and then placing his mark upon the "tang" comes down upon it with his hammer, and the tang bears the name of some manufacturer with the mark he has got from the Cutler's Company. The operation is frequently repeated on the blade. The mark is like a punch, and is required to be of the hardest and very best steel. A single blow suffices to give the name and mark the deep lodgment on the tang and blade of the knife to be.

Once more we are with the forger. The blades go back to him to be hardened and "tempered." See how he lays them on a small iron tray and heats them back again to a "worm-red" colour; and then suddenly plunges them in cold water. This latter operation is said to render the blade very hard and brittle. Now comes the process of tempering, which has partly to undo the work of cold water. The brittleness must be overcome, and if we observe our friend a little closely we shall see how he does it. He takes a fine sand, like a powder, rubs this upon the blade with the object of removing any "scaling" or unevenness of surface induced by the hardening process. They are next transferred to a steel tray, which is placed upon the fire, where it remains until the blades take a straw or bright blue tint; they are then taken off the tray and permitted to cool. They now need to have an edge given to them, and for that purpose back they go to the grinder, who gives them the requisite edge. From the grinder the blades pass to the "cutler" who receives the other portions required to make a complete knife. The name of these is legion. There is, first, the spring, which is necessarily made of steel. It is, in reality, the backbone of a pocket-knife. Several knives have many backbones, the springs being required according to the number of blades. Then there are the scales—the outer and the inner. The outer is the covering of the knife. It may consist of pearl, ivory, horn, shell, wood, or other material. Iron, brass, or German silver is used in the inner scale, which forms the divisions into which the different blades fit within the outer scale. Then, there are bolsters, rivets, and other appliances for fastening the whole together. All these and many other things are found in the cutler's shop, where may be also seen "buff" and "glazed" for polishing certain parts of the knife. The putting together is no trifling task. It requires a delicate touch, a keen eye, and good judgment and taste. After the various materials have been properly

secured and manipulated, the knives may be said to be so far finished. They are carefully wrapped in paper, and go to the grinder, for the third time, for the purpose of being polished. From the grinder they come to the warehouse, where they have to be "whetted." The sharpening process is not a tedious one—the edge of each blade is whetted by being dexterously and swiftly passed over a hard and special variety of stone, on the surface of which is spread olive oil, and in this way the knife receives its finishing touch, needs only further to be cleaned, and then packed to be sent away.

This, then, is the work which has to be done before that spring knife in your pocket is fit for your use. May the record of its manufacture lead you to look at it a little more attentively, to examine all its parts, see how admirably they fit into each other, and then think for a moment how the world would get on without so trifling and apparently insignificant an article of ordinary use as a pocket-knife.

WANTED—THE "BEST" MACHINE.

BY JAMES MARTIN.

Experts agree that now-a-days machines must be replete,
With every "attachment" and for sewing rigged complete,
And in them all the very best improvements must combine,
With the very highest finish, both in style and in design,
To meet the high requirements that the public now demand,—
And so the skilled mechanic must all his art command,
Striving late and early, ceaseless seeking to contrive.
Devices new to let all know that "Progress" is alive!

But some there are, insatiate still, who say that the machine
Will be better, and far better, than all they yet have seen —
That some coming great inventor will evolve from out his mind
A sewing wonder that will leave all others far behind!

And yet modern machines will sew on all the sev'ral tissues
Which the march of manufacture from a thousand factories issues.
They will sew as well on sheeting as on toweling and skirting,
Ticking, fustian, water-proofing, also window "curtling,"
Brocade and buckram, canvas, blond-lace and bombazin,
Mohair and matting, calico, merino and muslin,
Dimity and damask, gauze, sarsenet, and satin,
Drugget and dowlas, plush, linen and lustine
Cloth and carpet, crape, leather, lawn, lace and linsey,
Straw and paper, velvet, "printed stuffs" and winsey,
Hats and caps, pants, coats, slippers, boots, gloves and gaiters,
Umbrellas, shoes, purses, pocket-books and bracers.
They will sew a garter or a bodice, a ruffle or wristband,
An apron, sleeve, sash or dress, much better than by hand,
A mantle, cloak, frock, tippet or chemisette,
Head-dress or nightcap, shawl, gown or a jacket.
Hemming and frilling they will do, shurring, felling, quilting,
Braiding, cording and gathering—all without any wilting;
They are always set and ready, if in complete condition,
To do sewing of every kind, and without intermission.
The parts adjustable all are—the shuttles are "self-threading."
The balance-wheel has been set loose—the needles' "self-imbedding,"
The take-up too is positive, and sure-acting is the feed—
And automatic in all parts, they run with lightning speed!

These are some few "leading wants" an agent now must meet,
And with a good machine to sell he rarely meets defeat—
While to the whole he often adds, without stint or denial,
A very moderate price besides the chance of "four weeks' trial."

NICKEL.

DURING the past five years the consumption of this metal has been rapidly on the increase. The example which America had set in employing nickel in the coinage of cent pieces was followed by some European mints, especially those of Germany. Some three years ago quite a scarcity of this metal was perceptible, and its value was considerably enhanced accordingly, although but temporarily, as new discoveries have gradually increased the supply in different portions of the globe. The first mention of the existence of this metal was made by the Swedish mineralogist, Hiärne, in 1694, but it was not produced in quantity until the year 1754, by Cronstedt. Nickel is slightly magnetic, and forms a large proportion of the meteoric masses, which fall to the earth. The ore in which it was first found, and from which it is principally obtained at present is the "copper nickel," or sulphuret of nickel, containing arsenic, iron, and cobalt.

The employment of nickel for the purpose of nickel-plating has of late become quite extensive, and the comparative cheapness of this process, as well as the brilliancy and durability of the deposit, have given nickel-plating so great a popularity that it has superseded silver-plating to a very considerable extent, and bids fair to become one of the most important elements in ornamental metal working. This general application of the metal invests everything connected with it with special interest. Until quite recently, nickel was almost exclusively found in Germany, but in moderate quantities, at Schneeberg, Annaberg, Freiberg, Toachimsthal, Riechelsdorf, Saalfeld, and Wittichen; in Cornwall and other localities in Europe, Pennsylvania, and portions of the West; in Norway, and finally in the French penal colony in the Pacific, New Caledonia, in greater abundance. Most of the Norwegian mines smelt their own ores, but those of the Espedaten in that country are sent abroad for this purpose, as the furnaces are not yet erected. The mines of Snejen, which are owned by Englishmen, prove a source of considerable gain to the proprietors. The official statement shows that during the past year they have yielded 120 tons of metal, which at the rate of £1000 per ton represent a total of £120,000. Of fresh mines those in the Signal appear to be the most promising, and the works there will shortly be in a position to smelt their own ores. Many new mines of nickel have been opened, some of which will not unlikely prove remunerative. News of the New Caledonia mines first arrived early the present year *via* Melbourne, Australia, whither in September and October, 1875, the Kelly Nickel Mining Company, of New Caledonia, had been making some shipments of ore from the principal port, Noumea. At the latter place an advance of £70 to £80 per ton of ore was made, and the first shipment of ore made from Noumea to London direct realised £75 per ton.

An Englishman, Mr. Higginson, is much praised by the local authorities of New Caledonia for his efforts in developing the abundant resources of the colony in this particular branch of nickel mining, especially, also, in preparing the way for large shipments direct to France. Early in December, 1875, he threw open for the inspection of metallurgists at Sydney, New South Wales, a large quantity of nickel ore from the Bellar mine, one of the richest, the lot being the second shipment from this mine, and consisting of 150 hogsheads. It was found to be a pure hydrated silicate of nickel, assaying a high percentage. These nickel mines promise to be a great source of wealth to New Caledonia.

A large increase in the quantity produced would, of course, bring down the price still further, but, on the other hand, greater cheapness of the article would increase indefinitely its use in manufactures. Those of Norway are within tolerably easy reach of the Trondhjelm Fiord, and as the ore there is found in the right sort of formation, in a region bordering upon a country but little explored, there is every inducement for close and vigorous prospecting expeditions. Good prospects are thus held out for an increasing supply from sources pretty much the antipodes of each other, and nickel-plating may thus become more extensive than ever, should these hopes of greater cheapness be fulfilled. Whatever the local authorities in both countries can do towards stimulating intelligent search and working, we have little doubt will be done, neither the French nor the Scandinavians lacking in energy in this respect. It will, therefore, be interesting to watch the progress that will be made in those localities, which we shall duly report as it comes under our notice. The American nickel product is, we believe, only about 200 tons per annum, so that a large consumption must be met from foreign sources of supply.



SCHOOLMASTER: Why were you not at school last Sunday, Tommy Atkins?

TOMMY: Please Sir, me and Jermima, as is a saving up to get married, went round the shops to look for the best sewing machine.

SCHOOLMASTER: Hold out your hand. One—two—three.

HOLIDAY TIME.

"Let's to the sea-side, ho!"—*Othello*.

In the bustle and stir of this work-a-day world

We scramble and fight for our way,

A few reach their goal—some backward are hurled,

And but brief is our most joyous day.

Not a few race for gold, but more struggle for bread;

No matter, the speed is the same;

The industrious poor, with heart heavy as lead,

Work as hard as the seekers for fame.

We push and we drive, and are dogged by grim care,

From trouble scarce ever are free,

But now comes a respite, alas! but too rare,

We are bound for the beach and the sea!

THE HISTORY OF TOOLS.

No. 1.

TOOLS, when properly considered, are capable of leading our minds into the regions of philosophy, and the poet who could find sermons in stones will by-and-by discover that the dry subject of tools, even, will yield him an abundant harvest of real poetry.

Carlyle has defined man as a tool-using animal. On reflection there is more truth in the aphorism than may appear to lie upon the surface, for without tools man, restricted to the teeth and nails only, would be a very helpless creature indeed; but with tools, in combination with the intellectual force of the human mind, man has been enabled to carry out the world's work for thousands of years, including all things which afford evidence of material advancement or civilization. Tools, therefore, have been a very tangible element in the past history of mankind. For in all ages there has scarcely been a better index of the state of civilization in any nation or period than the condition of its tools, the one being the complement of the other—a low state of civilization indicating bad tools, while good tools are a reflex of a high civilization.

It has been said that "Necessity is the mother of invention." With equal truth it may be said that progress breeds new necessities. Thus, by the action and reaction of one idea upon another, tools have emerged from an invisible point in the mist of a remote antiquity, from which, by a series of imperceptible increments, they have grown and spread outwards to the commanding position they now occupy.

The word "tool" may be said, when taken in its broadest sense, to include every mechanical device that man has conceived and embodied in a material form in order to aid his own efforts in the accomplishment of his own purposes, more especially where the application of force is implied. They range from the first smooth stone used by the savage up to the self-acting mule or the Walter printing-machine, including even the locomotive engine, or any other higher development, for through them all, from the smooth stone upwards, one idea passes into another so gradually and imperceptibly that it is now impossible to draw a distinct line at any definite point, the conventional classification or nomenclature which is now employed being merely a matter of convenience to enable us to distinguish one sort of tool or device from another. The great point to realise clearly at the outset is this: That all mechanism of whatever nature, or by whatever name it may be known amongst men, is, in every individual case, the result of the material embodiment of an idea, that the original idea was first conceived in the human mind, and then, by the means available at the particular period of the world's history, man has been enabled to reduce the mental idea into a material, tangible form.

According to Carlyle, the first tool used by the pre-historic man was a smooth stone, selected for a practical purpose—to be employed against his foe, or to aid him in killing wild animals for his daily sustenance. In course of time the idea would gradually dawn upon the mind of some other man of an ingenious turn, that if a long leather thong was attached to the stone, with the other end of the thong having a loop to pass over the right wrist, he could thereby save the trouble of having to look for and find the stone after each effort, and he could sit quietly under the shade of a tree in waiting for the prey and hurl the stone without

having to change position for its recovery. The assumed thong would thus be the first decided contrivance for the saving of labour.

Of the earliest invention of tools, or the first application of mechanical force to perform work, there is no existing record. Man's first efforts with tools lie far beyond the reach of history or even tradition. The tool arts existed for thousands of years before Greece had reached the period of her artistic greatness; the tool art was ancient and mythical long before Romulus or Remus had been fondled; even far beyond the time when the Egyptian Pyramids were erected, for then tools were in a highly-advanced stage, of which there is ample evidence. Those great works were not carried out by the apprentice hand of man. In searching for the origin of tools we have to go a long way still farther back, away up into the somewhat mythical region of our own old fatherland, the home of the Aryan race, somewhere in Asia, where there is evidence that tools were familiar long before the Aryan swarms of colonists set out to people Hindostan, Persia, Greece, and Rome, and nearly the whole of Europe. It is interesting to read the account of the ethnological investigations that have thrown light upon the condition of tools during that period. We read that the words relating to tools, industry, and peaceful pursuits, to the domestic animals, to the weaving of cloth and the working of metals, have the same roots in the languages of all those nations, but that the words relating to war and most other subjects were originated by the several branches after the Aryan family had been broken up—thus showing that tools, the arts of peace and industry, must have been long established, otherwise the names of tools could not have been so firmly rooted in the minds of the entire race, to be retained in the memories of the whole stock in their respective colonies, when they, one by one, found a resting-place in other lands, including our own little island home.

When compared with those early days, it seems like coming down to modern times, when we reach a definite period where there is abundant evidence of the existence of tools, not only in Persia and Egypt, but more especially among the Semitic race of Israel, which are so frequently referred to in the Scriptures. The human race must have been long familiar with tools and the mechanical arts generally, before the ingenious mill-rights of Persia could have conceived and practically carried out into successful operation those deeply-interesting water-raising contrivances, which are still, almost unchanged, employed in the irrigation of that country, and are rendered all the more interesting from the circumstance that they are the first self-acting tools of which we have any record.

Referring to the Jews, we have every reason to infer from the Scriptures that Israel in Egypt had many of her sons apprenticed or employed in the foundries or workshops of that country. Moses holds out as an inducement to the people to leave Egypt and go to Palestine, that it was "a land whose stones are iron, and out of whose hills thou mayest dig brass," showing how familiar they must have been with metallurgical pursuits. And we find that almost as soon as they had reached the wilderness Moses called a meeting and appointed men of wisdom, understanding, and knowledge, to carry out all kinds of workmanship, to devise curious works in gold, silver, and brass, the cutting of stones and the carving of wood, and the cunning work of the engraver. Further on, it is impossible to read the account of their metal productions, the enormous dimen-

sions of the castings which were executed in bronze, without feeling that in Solomon's time the mechanical arts must have attained a very high standard; indeed, it is doubtful whether there is a founder in England even now who would undertake a contract for some of the castings that are described, while the many references that are made to the working of iron, to the smith and his various tools, show that they were much further advanced than we generally give them credit for.

On reaching the times of Euclid and Archimedes, we find tools highly advanced; the principles of tools are clearly understood, and about a hundred and thirty years before the Christian era there is a pumping steam engine at work in the court-yard of Hero of Alexandria, the pump having an air-vessel attached to produce a constant jet of water, similar to the modern fire-engine of John Vanderheyden. Both Pliny and Cicero refer to the tool called a lathe, but it is doubtful if they mean the lathe tool of our time; it is more than probable that they refer to the class of lathe which is more extensively employed in Birmingham for spinning sheets of metal into bowls or dish-covers; but in those early days the sheet of metal seems to have been laid on the table of a sort of potter's wheel, which would afford the same result.

Coming down to the tenth century of our era, we find that clocks were being made in Germany, and two centuries later in England, when a new class of tools begins, constructed with much greater neatness and refinement. Some of those new tools contained the rudimentary elements of our own self-acting tools, notably the lathe and the machine for cutting the teeth of wheels. In time those new tools became old, and are rapidly passing out of the sight of this generation; but, all the same, they were the tools by which our great-grandfathers were enabled to give a material embodiment to the ideas of Kay and Arkwright and Watt. They are now almost entirely replaced by the automatic tool creations of Maudslay, Roberts, Sir J. Whitworth, James Nasmyth, and many other great men, both of the past and present generation.

A HOLIDAY.

A HOLIDAY! What visions of foaming sea; what glimpses of sunny hills and shady dales; what music of rippling brooks; and what roar of rushing waters come stealing o'er the memory when we hear the words, "A Holiday." Indeed, as they fall on the ear, we seem almost to scent the fresh sea-air or the sweet flowers of the country. Our spirits rise at the thought of a week or two by the health-giving ocean; and a period of idleness in which we can roam about the meadows and woods is something that we have looked hopefully forward to through many dreary weeks of winter's gloom and fog. We think of the blow on the cliff, of the ramble on the downs, of the sail on the glittering ocean, and of the quiet cigar on the grass under a shading tree. We hear the splash of oars on the moonlit river, and the murmuring waves as they "fret the pebbly shore." All this, and far more, comes vividly to the mind's eye and ear when the words are uttered, "A Holiday."

In these days of hard, hurried work, when our business life is one continual round of bustle and stir, entailing a severe strain alike on mind and body, a holiday is not merely a pleasant cessation from work; it is one of the necessities of our modern life, without which our health, both mental and physical, would soon stand in perilous

position. Let not the reader suppose I allude to the lazy West-end dandy, or to the languid Belgravian *belle*, to whom the whole year is one continuous round of idleness, and who seldom use the little brains they have. I refer to the active business and professional men, whose minds are ever at work, long after the office has closed and the British workman has finished for the day.

There are some ill-natured old men who will sneer at a holiday, and will tell you that in "the good old days" when *they* were boys, all the holidays they had were Christmas-day and Good Friday, and when the former came on a Sunday, they only had *one day* in a year. If it were worth arguing at all with such generous and kind-hearted old gentlemen, we might ask them whether the penny post and electric current incessantly poured into their offices throughout the day, urgent communications requiring immediate answers? Were they whirled ten or twenty miles backwards and forwards to their business every day? Did they fear and rush about the city as quickly as we do now? No; they lived in a slower age, and free from the excitement, bustle, and stir of our present life. The posts that old Dr. Johnson used so affectionately to pat as he walked down Fleet Street have been removed to make room for our hurrying pedestrians, and were the Doctor himself to rise from his grave and saunter along at his customary pace, he would soon find his burly form elbowed into the gutter.

Let not the reader suppose I approve of all this hurry and bustle. I certainly do not; and when "on recreation bent" we should slacken the bearing-rein and rest both mind and body. But do we? How many of us there are who spend a holiday in a railway train! We join a tourist party and *do* as many towns as we can possibly scamper through in the time, going thousands of miles and really seeing nothing. We stand in some Continental cathedral and hear the deep, grand notes of the organ rolling along under the grey stone arches. If we were alone, and listened for awhile, we should feel something soothing, yet inspiring, in their sound. But we have joined a party, led by a guide, and are hurried on to see the next sight, and thus we miss the mystic speech of the music that we might have heard. We cannot, either enjoy the calm of the meadows by a glimpse from the railway train; and by scampering through beautiful cities, we fail to observe their grandeur. So, we return home, many of us, feeling little better for our change, and finding the last few miles of the journey very tiring and tedious, be the springs of the carriage ever so flexible or the cushioned seat of the softest.

The desire to go everywhere is the great fault of our modern holiday-making. Wherever the reader may go let him remember this, "DON'T BE IN A HURRY."

THE CHANNEL TUNNEL.

Gods built the walls of Troy, and Fates decreed
That they in strength inviolate should stand,
Defying hot assault and burrowing hand,
Nor fall—save by Troy's sons' own senseless deed.
Fools and infatuate! they with thoughtless speed
And ill-timed mirth—a giddy-hearted band—
Deaf to prophetic voice, haled from the strand,
Through broken walls, the ruin-laden steed!
Forces divine broke through the ridge that spanned
The narrow seas, and rolled the encircling main
An everlasting moat, to shield thy land,
Britain, last hold of freedom, from war's stain.
Shall sons degenerate, reckless slaves of gain,
Tempt thee to render Heaven's own safeguard vain?

—Spectator.

THE VERTICAL FEED SEWING MACHINE.

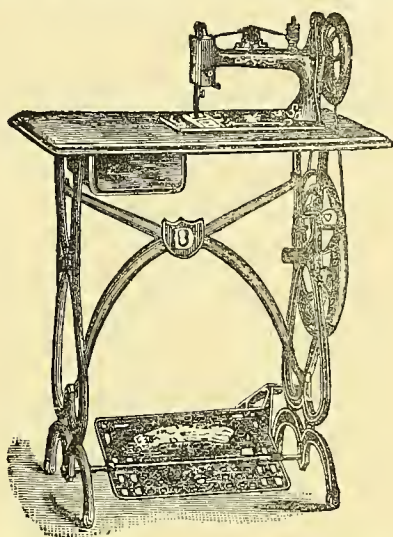
Beyond dispute the only really Perfect Machine yet produced.

AWARDED THE
ONLY GOLD MEDAL

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**SYDNEY & MELBOURNE
EXHIBITIONS,**

In Competition with all the leading Machines.

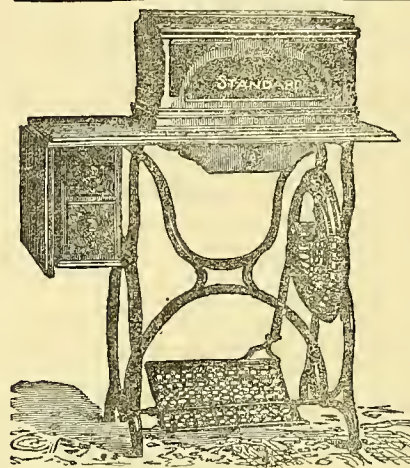


This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking, and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity, and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the Work and every information, may be obtained at the Offices of the Company,

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JOURNAL OF DOMESTIC APPLIANCES

AND

Sewing Machine Gazette.

ALMOST every day some invention is made in connection with the sewing machine. A few only of the ideas are practical, and still fewer are carried out further than the registration of a Provisional Protection at the Patent Office. Among the many inventions there is one which calls for special attention, and, should it prove practical, it will work a new era in sewing machine manu-

facture. The invention we refer to, like most sensible inventions connected with the sewing machine, owes its origin to an American brain. It is for making the cabinet part of the machine of paper which has been hardened by a patent process. This paper or paper board is solidified by means of an anti-warping hardening compound or solution. The angles and points where greatest strength is required are thickened and reinforced, and the exterior surface of the completed cabinet is finished with enamel or japan. Of course the surface may be finished in many different ways, according to taste or the limitations of expense.

Paper is cheap enough—cheaper in England than elsewhere—and all that is now required to produce cabinets, more tasteful in design and yet far cheaper than wood, is suitable machinery. It is the opinion of some American sewing machine men that costly black walnut has had its day, and that the handsome ornamented cabinets of the future will be made of paper.

OUR ILLUSTRATED SUPPLEMENT.

A GOOD machine for kilting is that made by the Singer Manufacturing Company, of 89, Foster Lane, E.C. It is a 10 inch machine, is strong, neatly made, and most simple to work. We can recommend this kilter to our shipping subscribers.

SEWING MACHINE TRADE IN FRANCE.

I HAVE the satisfaction to inform you that our sewing machine trade is recovering. Our manufacturers and wholesale dealers lately have done an important business in the province.

All the sewing machine people pretend to be satisfied with their business during the first three months of this year. You can be sure, however, that this is not exactly the case, a fact of which I informed you in another letter, and which I repeat, convinced as I am of its truth. As I told you there may be a few exceptions, but the general trade has suffered during this period.

A person who holds a position which enables him to be well informed, recently told me about the new Hurtu machine, which has a circular shuttle, and he assured me that this machine is the very best among all those manufactured in France. It really makes 2,500 stitches a minute, and very fine stitches too. It is also much asked for, especially by manufacturers of corsets. I must acknowledge that I need this affirmation in order to believe the announcement placarded in the retail-shop of Mr. Hurtu, Boulevard Sebastopol. It begins as follows :

Great unprecedented success! New machine, with uninterrupted thread, making the lock stitch, bobbin above and bobbin below, 2,500 stitches a minute, &c. Though I know that this firm is serious, this placard was very much like charlatanism. Firstly it had been my intention to keep my appreciation to myself, but when I heard from well-informed people that the machine really possessed the qualities which had been claimed for it, I was aware that my judgment had been hastily formed, and therefore acknowledge this honorably.—*Paris Correspondent La Machine à Coudre.*

ANTIQUITY OF LEATHER.

LEATHER is not primary, but is the result of an earlier evolution. Leather points backward to the first artifice, the original handicraft of man. Nature provided for the turtle its shell, for the bear its fur, for the bird its feathers; but man she thrust forth naked into the pitiless storm and the biting frost. Seeing this inequality of distribution, he set about to get a readjustment of the scale of things, and seizing such club or stone as he could find, carried slaughter among the bears and goats, peeled off their skins, and by puncturing therein proper holes, and inserting suitable thongs, made for himself a coat, and perhaps it may be said—judging by the Esquimaux—trousers. Thus, undoubtedly, began that now grand human achievement, manufactures. But the beast did not submit to this untimely taking off without protest—and every time the second owner of the skin loosened the thongs of his coat or changed his every-day for his holiday suit he was disagreeably reminded of the first owner by the fetid odor emitted from the flesh side of his garment. It was not a matter of conscience respecting the wrong he had done the bear or the goat—for the primitive man could not have been thus scrupulous—but a matter of aesthetics; he realized that this excess of perfumery was not high-toned. The story is a long one, but, to make it short, it may be said that it occurred to the man, after due consideration, that as the bark of certain trees was full of tannin, he might soak his skins in a liquor of which tannin should be the chief chemical ingredient, and thus not only get rid of the foul odor but improve his garment in other respects. Some thousands of years may be supposed to have elapsed between the first and second act in this drama, but eventually man came to leather for his garment, and has by no means done with it yet, as what is herein to follow will show. One of the earliest bits of information that the youth of America and England get concerning the habiliments of their ancestors is from Mother Goose. As the sober facts relating to the business will appear further on, the lines may here be quoted for illustration's sake :—

One misty, moisty morning, when cloudy was the weather,
I chanced to meet an old man, clothed all in leather :

He began to compliment and I began to grin—

“How do you do?” “How do you do?” and “How do you do?” [again.]

“Clothed all in leather” certainly does not describe the modern man, but in the distant years when the lines were originally written they recorded only a common place fact. Man eventually shed his leather jerkin and breeches and put on a better fabric. But as the Darwinians say of a man in general, that his finger nails and toe-nails are reminders and relics of his ancestors the horse, being all that is now left in him of the hoofs of that ancestor, it may be said, in an analogous way, of the contemporary man, that the furred skins and leather wrappings of his human progenitors have permanent affiliation with the boots or shoes which always protect his feet and the gloves that sometimes shield his hands. While it is true that these latter are more usually worn as an ornament than a shield, his vulnerable toes he must defend against the hardness of city pavements and the sharpness of rural thorns and briars, and against wet and frost wherever he may be. Armor-clad by the tanner and cordwainer, he moves unhurt amid all these enemies, and constantly exemplifies the truth of the proverb of the Eastern sages, “It is the same to him who wears a shoe as if the whole earth were covered with leather.”

ABSTRACTS OF SPECIFICATIONS.

1345. SEWING MACHINES: W. R. LAKE, London. (C. E. Tibbles, Burlington, Iowa, U.S.A.) [1s. 47 Figs.]—This specification contains thirty-three claims, and in the limited space at our disposal it would be impossible to give a complete abstract. Refers principally to the construction and arrangement of the feed cans, of the balance wheel, shaft and fastenings of the shuttle lever, of the double crank driving shaft of the take-up arm mechanism, of the oil reservoirs in the bedplate, of the shuttle, of the needle-bar, and of the treadle mechanism and dress guard. March 13, 1883.

*5209. SEWING MACHINES: F. SIMMONS, London. [2d.]—Relates to machines in which the head carrying the needle bar is caused to slide in a direction at right angles to the feed, the objects being to adjust the length of the cross-stitch and to use the machines for ordinary sewing without removing any parts. November 1, 1882.

5312. GAS STOVE FOR HEATING WATER FOR BATHS, &c. J. BARTLETT, London. [6d. 2 Figs.]—The cylindrical body of the stove has a double casing, the space between being filled with bad heat-conducting material. Over the gas jets is a coil of pipes connected by upright spiral pipes, to a shallow receptacle at the top; in these pipes the water circulates, and is taken away from the receptacle at the top. The products of combustion pass upwards, heating the spiral pipes, and passing through holes in the receptacle escape through a pipe at the top of the body of the stove. November 7, 1882.

5361. WASHING, WRINGING, AND MANGLING MACHINES, &c.: J. P. ROTHWELL, Lytham, Lanc. [8d. 16 Figs.]—Relates to (1) means for imparting rotary motion to the rollers of wringing and mangling machines, consisting of the application of a foot lever connected by a rod to a crank; (2) gearing for rotating the rollers of such machines, consisting in the use of frictional gear; (3) an appliance for washing wearing apparel, &c.; (4) the bearings of the rollers; and (5) regulating the pressure on the top roller of wringing and mangling machines, &c. November 10, 1882.

5362. LAMPS: J. UNGAR, London. [6d. 6 Figs.]—Refers to street lamps and consists in forming the bars carrying the roof lights or glasses of double T or H section; inserting the glasses loosely between the flanges thereof without using putty, &c. November 10, 1882.

*5364. TRICYCLES, &c.: H. S. S. WATKIN, Waltham Abbey. [2d.]—Extra gear is applied, operated by back action of the pedals to obtain increased power. November 10, 1882.

5369. VELOCIPEDES, &c.: J. NOAD, H. BLACKWELL, and H. B. Bunkell, London. [2d.]—To obtain increased power each treadle is applied, not directly to the cranks but to a separate bar, one end of which slides in or on the fork, whilst each bar also receives the end of a crank and towards its outer end each receives a treadle. November 10, 1882.

*5186. SEWING MACHINES: M. H. PEARSON, Leeds. [2d.]—The needle bar is pivoted and has an intermittent motion given to it by a cam on the driving shaft. The shuttle is circular, with a rotary reciprocating motion. Mention is also made of improvements in other details. November 28, 1881.

1562. SEWING MACHINES: S. PITT, Sutton. (L. B. Miller and P. Diehl, Elizabeth, N.J., U.S.A.) [4d. 6 Figs.]—Relates to single thread or chain-stitch sewing machines, the objects being to provide mechanism for producing the "twisted" chain stitch, and to provide means for sewing simultaneously two or more seams, and varying and adjusting the same so as to increase or decrease the distances between such seams. March 27, 1882.

5179. SEWING MACHINES: G. BROWNING, Glasgow. [8d. 6 Figs.]—The objects are to enable the presser-foot to be used either as a "fixed" or "vibrating" presser-foot, and to provide mechanism for regulating the speed at which the machines are driven. October 31, 1882.

*5329. PORTABLE BAKING OVENS: C. D. ABEL, London (G. Taddei, Turin.) [2d.]—Relates more particularly to military ovens. Consists of two chambers, one within the other, with a space

between. The outer chamber is formed with a fire-grate at bottom, and the flames enter the space between the two chambers and escape through openings at the top. November 8, 1882.

44. KNITTING MACHINES: H. J. ALLISON, London. (C. H. Carter, Colborne, Ontario.) [8d. 11 Figs.]—Relates to a machine for knitting either a circular or a ribbed flat web, and to the method of interchanging the ribber and cylinder needles without removing the stitch. January 3, 1883.

*5234. BICYCLES AND TRICYCLES: G. SINGER, Coventry, and W. R. Davies, Abergavenny. [2d.]—The wheels upon which the driving chain runs are made of an oval shape. Two eccentrics are provided for the crank of the tricycles, one of which is firmly fixed to each throw off and revolves with the crank. Relates also to a steering arrangement operated by an endless screw. November 2, 1882.

CORRESPONDENCE.

To the Editor of the "Journal of Domestic Appliances and Sewing Machine Gazette."

DEAR SIR.—In reply to your correspondents T. B. Terry and Company, he will get the machines he desires for sewing harness work with wax thread from Messrs. Pearson and Co., 9, Acorn-street, Bishopsgate, E.C., London, who are, to the best of my knowledge, the only makers of these kind of machines in this country.—Yours truly,

C. H. G.

MR. ROBERT KERR, late of the firm of Messrs. Dawbarn and Co., Bury Court, St. Mary-axe, has commenced business on his own account under the style of Robert Kerr and Co., at 1, Market-street, Bermondsey, as tanners, curriers, and leather merchants, where they will always have in stock a large and extensive assortment of porpoise hides, porpoise laces, dubbin, &c., &c.

CEMENT FOR LEATHER WORK.—The following is a cement for leather:—Mix 10 parts of carbon disulphide and 1 part of spirits of turpentine; dissolve as much gutta-percha in this mixture as will make a thick liquid. The parts to be joined must be perfectly free from grease. The cement is to be applied to both parts, which must be pressed together till the cement dries.

WHY is a needle like a dog asleep? Because it has an eye open.

WHY is true love like a good ruffler? Because it is a lasting attachment.

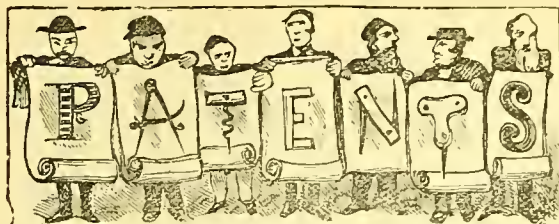
What is the difference between sewing machines and bullets? Sewing machines are driven and bullets are le(a)d.

SCENE.—Sewing machine office. Enter small boy, with two bottles.—*Boy*: Please, sir, mother wants a cent's worth of your best oil.—*Agent*: Which bottle will you have it in.—*Boy*: Please, sir, she wants it in *both*; and won't you put *corks* in 'em and send 'em home, as I'm going t'other way; and mother says she hain't got no cent, but you must *charge* it, and she will pay for it in monthly instalments.

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The following list has been compiled expressly for this Journal, by Mr. G. F. Redfern, Patent Agent, of 4, South Street, Finsbury, London, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 2986. J. C. Cox, of 174, Queen Victoria-street, London, for improvements in tills. Dated June 15, 1883.
- „ 2998. J. Heap, of Ashton-under-Lyne, Lancashire, Engineer's Tool Maker, for improvements in screwing apparatus. Dated June 16, 1883.
- „ 2999. J. Hawthorn, P. Hawthorn, and J. P. Liddell, of the firm of J. Hawthorn and Company, of Newtown, Cheshire, Machinists, for improvements in machinery for washing, soaping, or otherwise treating woven fabrics with liquors or liquids. Dated June 16, 1883.
- „ 3011. J. G. Howard, of Biddenham, Bedfordshire, for an improved apparatus for marking the ground for lawn-tennis and other games. Dated June 18, 1883.
- „ 3013. W. Ayres, of Cable-street, St. George's-in-the-East, London, for improvements in stench-traps for drains and other like purposes. Dated June 18, 1883.
- „ 3015. G. W. von Nawrocki—a communication from H. Haltaufderheide, of Cassel, Germany, for improvements in the manufacture of rising hinges. Dated June 18, 1883.
- „ 3016. J. Imray—a communication from Marie Louise A. de Briey, Comtesse de Montebello, of Paris, for improvements in apparatus for the manufacture of weldless chains. Dated June 18, 1883.
- „ 3022. J. O. Fry, of Nottingham, for improvements in soldering irons. Dated June 19, 1883.
- „ 3025. E. Edwards—a communication from L. Bourrié, of Lyons, France, for an improved adjustable spring for locks, latches, or bolts. Dated June 19, 1883.
- „ 3028. A. G. Brookes—a communication from R. Whitehill, of New York, United States, for improvements in sewing machinery. Dated June 19, 1883.
- „ 3037. H. J. Haddan—a communication from J. Weig, of Dortmund, Germany, for improvements in or applicable to safety lamps. Dated June 19, 1883.
- „ 3038. W. R. Lake—a communication from E. Jenkins and A. Law, both of Melbourne, Founders, and W. Price, of Carlton, Ironworker, all in the colony of Victoria, Australia for an improved process of annealing chilled and other iron castings. Dated June 19, 1883.
- „ 3043. W. R. Lake—a communication from Messieurs Mayer, Langfelder, and Hammerschlag, of Vienna, for improvements in and relating to door-locks or latches. Dated June 19, 1883.
- „ 3057. F. Ellisdon, of Liverpool, for improvements in and appertaining to spring beds, mattresses, couches, and the like. Dated June 20, 1883.
- „ 3059. R. Mindt, of Berlin, for an improved ironing machine. Dated June 20, 1883.
3064. J. D. Sprague, of Beulah-hill, Upper Norwood, London, for improvements in latches, bolts, or fastenings for doors, windows, and other articles of a similar character. Dated June 20, 1883.
- No. 3065. T. Fox, of Sheffield, for improvements in the manufacture of plain and ornamental metallic fellows or tyres. Dated June 20, 1883.
- „ 3067. W. Jackson, of 11, Caroline-street, Eaton-square, London, Manufacturer, for improvements in the construction of tricycles. Dated June 20, 1883.
- „ 3072. T. Robinson, Ironfounder, and J. Robinson, Chemist, both of Widnes, Lancashire, for improvements in apparatus to be used in the casting of iron. Dated June 21, 1883.
- „ 3073. C. J. Henderson, of 6, Drumsheugh-gardens, Edinburgh, for abstracting heat in larger quantities from stoves and other heating apparatus by passing a confined current of air over the hot surfaces, and for constructing an apparatus to effect this. Dated June 21, 1883.
- „ 3081. J. Moyes, of Pollokshields, Renfrewshire, North Britain, for an improved ventilating sewer-trap. Dated June 21, 1883.
- „ 3082. A. J. Denny—a communication from F. Yahnel, of Zittau, Saxony, for a new or improved washing machine. Dated June 21, 1883.
- „ 3085. C. Butler, of 390, New John-street, West, Birmingham, Lamp Manufacturer, for improvements in hydro-carbon heating stoves. Dated June 21, 1883.
- „ 3098. J. C. Morrison, of West Ham, Essex, and R. Smith, of Bromley, London, for improvements in oil burners. Dated June 22, 1883.
- „ 3106. C. Thompson, of Newington Butts, London, Perambulator Manufacturer, for improvements in perambulators. Dated June 22, 1883.
- „ 3125. J. Sidaway, of Halesowen, Worcestershire, Manufacturer, for improvements in the manufacture of spades and shovels. Dated June 23, 1883.
- „ 3134. F. T. Bond, of Gloucester, Doctor of Medicine, for improved appliances for cooling liquids, also applicable for heating the same. Dated June 23, 1883.
- „ 3131. W. Wright, of Droylsden, Lancashire, for improvements in the construction of velocipedes, partly also applicable to seats for other vehicles and for ordinary use. Dated June 25, 1883.
- „ 3140. J. H. B. Wigglesworth, of Batley, Yorkshire, for improvements in apparatus for scraping and cleansing boots and shoes. Dated June 25, 1883.
- „ 3143. H. Devine, of Manchester, for improved apparatus for regulating the pressure of gas. Dated June 25, 1883.
- „ 3146. M. Syer, of Peckham, Merchant, J. Gilmore, of Lower Norwood, Clerk in Holy Orders, and W. R. Clark, of Peckham, Mechanician, all of London, for improvements in flushing apparatus and in waste-not valves to be employed therein, applicable to other purposes. Dated June 25, 1883.
- „ 3154. J. McIntyre Shaw, of Glasgow, for improvements in cooking ranges. Dated June 26, 1883.
- „ 3155. H. J. Lawson, of Coventry, Engineer, for improvements in the construction of velocipedes and in apparatus in connection therewith. Dated June 26, 1883.
- „ 3162. W. H. Winter, of Sheffield, Brass and Ivory Turner, for improved means of attaching and fastening handles to tea and coffee pots, urns, hot-water jugs and similar vessels. Dated June 26, 1883.
- „ 3166. H. J. Haddan—a communication from A. Tabour-Moisson, of Paris, for a new or improved thread winding attachment for sewing machines. Dated June 26, 1883.

- No. 3174. J. H. Johnson—a communication from F. A. Troemé-Becker, of Paris, for improvements in or additions to saws. Dated June 26, 1883.
- „ 3179. C. Harvey, junior, of Yardley, Worcestershire, Manager of Works, and W. Paddock, of Birmingham, Machinist, for improvements in tricycles, bicycles and other velocipedes. Dated June 26, 1883.
- „ 3181. C. W. H. Brock, of Bishop Waltham, Hampshire, for improvements in means for holding and adjusting roller blind cords. Dated June 26, 1883.
- „ 3195. W. Lockwood, of Sheffield, for improvements in the manufacture of rollers for wringing and mangling machines. Dated June 26, 1883.
- „ 3200. H. Burgin, of Walthamstow, Essex, Gentleman, for improved appliances for inducing air or gaseous fluids from chimneys or other stack pipes, for the prevention of down draughts, and for the purposes of ventilation. Dated June 27, 1883.
- „ 3201. J. H. Johnson—a communication from Messieurs Guillot, Pelletier, & Co., of Orleans, France, Engineers, for improvements in apparatus for heating water or air, or the like. Dated June 27, 1883.
- „ 3204. J. Farrimond, Builder, and J. Whittaker, Plumber, both of Southport, Lancashire, for improvements in ventilating water and other closets. Dated June 28, 1883.
- „ 3212. W. E. Diehl, of Philadelphia, Pennsylvania, United States, Merchant, for an improved door retention stop. Dated June 28, 1883.
- „ 3221. R. W. Bradnock, of Moseley, Worcestershire, Brass Founder, for a new or improved corkscrew or cork-drawer. Dated June 29, 1883.
- „ 3222. W. Allison, of Glasgow, for improvements in hooks or pegs for hanging or supporting garments and other articles, and in securing or fixing such hooks or pegs. Dated June 29, 1883.
- „ 3225. E. Raitt, of 48, Probert Road, Brixton, London, for improvements in water waste preventors. Dated June 29, 1883.
- „ 3234. H. H. Lake—a communication from A. B. Lipsey, of West Hoboken, New Jersey, United States, for improvements in and relating to gas-burners and in chimneys for use with the same. Dated June 29, 1883.
- „ 3237. R. Murray, of Brixton, London, for improvements in lock-up liquor, scent, and other similar cruet frames or stands. Dated June 29, 1883.
- „ 3241. H. H. Lake—a communication from A. B. Lipsey, of West Hoboken, New Jersey, United States, for improvements in and relating to gas burners. Dated June 29, 1883.
- „ 3247. J. Carrick, of Glasgow, for improvements in cooking ranges and ovens. Dated June 30, 1883.
- „ 3253. J. Kenyon, J. Barnes and R. W. Kenyon, all of Accrington, Lancashire, for improvements in machines for wringing and mangling fabrics. Dated June 30, 1883.
- „ 3256. C. Mather, of the firm of Messieurs Mather and Platt, Salford Iron Works, Manchester, Engineer, for improvements in tricycles and other vehicles, to be propelled by human power. Dated June 30, 1883.
- „ 3260. W. T. Eades, of Birmingham, Manufacturer, for improvements in tricycles and other velocipedes. Dated July 2, 1883.
- „ 3262. J. W. Thornton, of the firm of W. & S. Thornton & Son, of Huddersfield, Hot Water Engineers, and F. Milan, of Huddersfield, for improvements in the method of and apparatus for opening and closing valves in connection with hot water apparatus. Dated July 2, 1883.
- No. 3270. M. R. Cook, and R. F. Cook, of 42A, Warwick Street, Blackfriars Road, London, Perambulator Body Makers, for improvements in the manufacture of bassinets and perambulators. Dated July 2, 1883.
- „ 3276. A. M. Clark—a communication from V. E. Versepuy, of Paris, for an improvement in clocks. Dated July 2, 1883.
- „ 3281. J. McLaran, of Stenhousemuir, Stirlingshire, North Britain, for improvements in moulds for producing iron and steel castings. Dated July 3, 1883.
- „ 3296. Eliza Mary Loe—a communication from W. C. Loe, of Paris, for improvements in window fastenings. Dated July 3, 1883.
- „ 3297. C. D. Abel—a communication from A. Urban and Söhne, of Vienna, Manufacturers, for improvements in forging railway spikes, screw bolts, nuts, and the like, and in machinery therefor. Dated July 3, 1883.
- „ 3300. W. R. Lake—a communication from C. Mace, of Philadelphia, Pennsylvania, United States, for improvements in apparatus and machinery for use in the manufacture of springs. Dated July 3, 1883.
- „ 3309. A. Tylor, of 2, Newgate Street, London, Brass Founder, for improvements in apparatus for preventing waste of water in water-closets, urinals, and other places where a measured quantity of water is required to be delivered at each operation. Dated July 4, 1883.
- „ 3311. D. G. Cameron, of Palace Road, Lambeth, London, for improvements in flushing apparatus. Dated July 4, 1883.
- „ 3312. J. White, Watch Manufacturer, and J. Asbury, Mechanician, both of Coventry, and F. G. Francis, of Folkestone, Kent, Engineer, for improvements in the construction of velocipedes and in seats or saddles for the same. Dated July 4, 1883.
- „ 3315. W. Wade, of Crewe, Cheshire, for improvements in or appertaining to fire grates, kitchen ranges, and the like. Dated July 4, 1883.
- „ 3330. J. Cornforth, of Birmingham, Manufacturer, for improvements in tricycles of the kind commonly called 'convertible sociables.' Dated July 5, 1883.
- „ 3344. A. J. Boulton—a communication from Messrs. Bonquet and Bulle, of Besancon, France, for improvements in ventilating casements. Dated July 5, 1883.
- „ 3346. J. M. Johnson—a communication from J. Reckendorfer, of New York, for improvements in holders for knife blades, files, toothpicks, and similar articles, which are also applicable to the holding of pencil leads, pens, or the like. Dated July 5, 1883.
- „ 3354. N. Stevenson, of Wimpole Street, London, for an improved apparatus for automatically preventing waste of gas in gas burners for cooking and similar purposes. Dated July 6, 1883.
- „ 3363. E. Boyes, of Albert Road, Peckham, London, for improvements in coffee pots. Dated July 6, 1883.
- „ 3366. W. R. Lake—a communication from E. A. Chameroy, of Paris, for improvements in and relating to door locks. Dated July 6, 1883.
- „ 3396. D. and S. Timings, of Birmingham, Stampers and Piercers, for improvements in the construction of door springs. Dated July 9, 1883.
- „ 3399. F. Newman, of Ryde, Isle of Wight, Civil Engineer, for improvements in fastenings for doors. Dated July 10, 1883.

- No. 3405. J. M. M. Miney, of Birmingham, for improvements in tricycles or other like velocipedes worked by the feet while in a sitting or recumbent position. Dated July 10, 1883.
- „ 3408. J. H. Johnson—a communication from L. Dathis, of Paris, Civil Engineer, for improvements in portable ovens for baking bread and other aliments. Dated July 10, 1883.
- „ 3432. F. W. Jones, of Exeter, for improvements in velocipedes. Dated July 12, 1883.
- „ 3440. T. James, of Neath-road, Morriston, Swansea, for improvements in machinery or apparatus for coating metal plates with tin, lead, or other metals or alloys of the same metals. Dated July 12, 1883.
- „ 3455. J. Maconochie, of Lowestoft, for improvements in the construction and manufacture of tin and other metal cans or canisters and boxes or cases. Dated July 13, 1883.
- „ 3456. W. E. Gedge—a communication from E. Cornely, of Paris, for improvements in sewing or embroidering machines. Dated July 13, 1883.
- „ 3463. R. A. Gilson, and W. J. Boer, of 180, Union-street, Southwark, London, for improvements in bakers' ovens and ovens to be used for other purposes. Dated July 13, 1883.
- „ 3468. H. J. Haddan—a communication from G. Gontier, of Cognac, France, for improvements in spanners. Dated July 13, 1883.
- „ 3469. H. J. Haddan—a communication from D. W. Ernstring, of Bremen, Germany, for a new or improved cord-fastener for window blinds, also applicable generally for fastening strings, ropes, chains, or taps. Dated July 13, 1883.
- „ 3473. A. M. Clark—a communication from E. F. Peyre, of Paris, for improvements in apparatus for dyeing the seams of gloves, applicable to glove sewing machines. Dated July 13, 1883.
- „ 3482. W. A. Rudling and J. F. Coffin, both of Southsea, for improvements in the construction of bicycle alarms and other apparatus combined therewith, partly applicable to other vehicles. Dated July 14, 1883.
- „ 3487. J. T. Neighbour, of 36, Lismore-road, Kentish Town, London, for soldering joints of wire of all sizes and of different descriptions, particularly telephonic or electrical, and copper and brass tubes, whether exposed to the air, or not, and for melting lead and other metal for soldering and other purposes. Dated July 16, 1883.
- „ 3488. J. Fairbairn, of Edinburgh, Plumber, for improvements in and connected with water closets, urinals, lavatories, baths, and service cisterns. Dated July 16, 1883.
- „ 3489. J. Seligman—a communication from G. Josephs, of Philadelphia, United States, for improvements in shears or apparatus for cutting round and flat metal. Dated July 16, 1883.
- No. 6160. A. Guillaume and A. Lambert, of Fosses, Belgium, Manufacturers, for improvements in sewing machines. Dated December 23, 1882.
- „ 6205. J. Proudley, of Manchester, for improvements in the construction of washing machines. Dated Dec. 29, 1882.
- „ 6217. J. Harrington, of the "Enamel and Cradle Spring Works," Coventry, for improvements in velocipedes and in appliances connected therewith. Dated December 29, 1882.
- „ 6222. A. Bradshaw, of Accrington, Engineer, for improvements in cocks or valves for steam, water, gas, or other liquids and fluids. Dated December 29, 1882.
- „ 6236. W. R. Lake—a communication from A. Faugier, of Lyons, France, Bolt Manufacturer, for improvements in machines for the manufacture of screws. Dated December 30, 1882.
- „ 40. H. Clarke, of Leicester, for improvements in machinery and apparatus applicable to stitching or sewing machines. Dated January 3, 1883.
- „ 63. J. Malin, of Sheffield, for improvements in adjustable spanners. Dated January 4, 1883.
- „ 74. J. Betjemann, of 36 and 38, Pentonville-road, London, for improvements in fire screens in order to render them useful also for other purposes. Dated January 5, 1883.
- „ 80. C. Carter, of 6, Station-road, Clapham Junction, London, for improvements in curling tongs or irons. Dated January 5, 1883.
- „ 81. W. A. Shaw, of Nottingham, for improvements in buckle locks. Dated January 6, 1883.
- „ 97. W. Weldon, of Rede Hall, Burston, for improvements in the manufacture of aluminium and alloys of aluminium. Dated January 8, 1883.
- „ 102. G. D. Peters, of Bunhill-row, London, for improved apparatus for facilitating the action of spring rollers for window blinds. Dated January 8, 1883.
- „ 114. J. B. Brooks, of Birmingham, for improvements in the construction of saddles or seats of bicycles, tricycles, or other like purposes. Dated January 9, 1883.
- „ 149. W. Barwell, Manufacturer, and T. Johnstone, Machinist, both of Birmingham, for improvements in machinery for the manufacture of screw bolts, rivets, spikes, coach screws, and other like headed articles. Dated January 10, 1883.
- „ 162. J. Shaw, Brass Finisher, and F. Milan, Hot Water Engineer, both of Lockwood, for improvements in the method of and apparatus for indicating the presence or absence of water in cisterns or other vessels in connection with baths and other water apparatus. Dated January 11, 1883.
- „ 175. F. J. Drewry—a communication from H. Martini, of Chemnitz, Germany, for improvements in knitting machinery for the production of coloured fabrics. Dated January 11, 1883.
- „ 213. E. A. Showell, junior, Brassfounder, and C. Turner, Pattern Maker, both of Birmingham, for improvements in sash and cement fastenings. Dated January 13, 1883.
- „ 220. G. Davis, Iron Merchant, of Aberystwith, Wales, W. Jones, Cabinet Maker, of Llannon, Wales, and R. Girdwood, Merchant, of Edinburgh, for improvements in or connected with chimney cowl and ventilators. Dated January 15, 1883.
- „ 290. J. D. Sprague, of Beulah Hill, London, for improvements in holders or fastenings for blinds, sash, and other similar cords. Dated January 18, 1883.
- „ 833. E. P. Alexander—a communication from C. Cheswigh*, of Bordeaux, for improvements in foot mats for

Letters Patent have been issued for the following:—

- No. 5971. H. Hawgood, of Vine House, Vineyard, Richmond, House Furnisher, for an improved method and means of covering stairs with carpet or the like. Dated December 14, 1882.
6109. W. A. Crommelin, J. Lees, H. Spain, and W. H. Thompson, all of 76, Coleman-street, London, for improvements in the construction of ovens heated by gas. Dated December 21, 1882.
6156. J. E. Cope, of Birmingham, for improvements in sash fasteners. Dated December 23, 1882.

- doors, bath rooms, and other places. Dated January 20, 1883.
- No. 350. H. J. T. Piercy, of Birmingham, for improvements in bascules or see-saws. Dated January 20, 1883.
- „ 352. J. M. Hart, of 76, Cheapside, London, for improvements in fire-resisting doors and in means for ensuring the proper locking and also the close fitting of doors or covers of safes and other depositories. Dated January 22, 1883.
- „ 353. J. M. Hart, of 76, Cheapside, London, for improvements in locks and latches, and in parts connected therewith. Dated January 22, 1883.
- „ 369. G. S. Grimston, of Brockley, and A. S. Bower, of St. Neots, for improvements in gas burner apparatus. Dated January 23, 1883.
- „ 382. J. Watson, and G. Whalley, both of Keighley, Machine Makers, and T. Weatherill, of Leeds, Traveller, for improvements in vehicles propelled by the riders. Dated January 24, 1883.
- „ 387. G. F. Harrington, of Ryde, Isle of Wight, Gentleman, for improvements in ventilating sewers. Dated January 24, 1883.
- „ 440. W. T. Shaw, of Adelaide Road, Surbiton, and W. Sydenham, of Wood Street Chambers, Old Street, London, for improvements in velocipedes and apparatus connected therewith. Dated January 26, 1883.
- „ 505. J. H. Norrington, of Harlesden, Middlesex, Ironmonger, for improvements in attachments for brackets, arms, or snelves, to their standards, also applicable for supporting picture and other rods or rails. Dated January 30, 1883.
- „ 533. H. B. Barlow—a communication from O. Cazeneuve, of Montrejeau, France, for improvements in knitting machines. Dated January 31, 1883.
- „ 565. H. Ferrer, of Balsall Heath, for improvements in Metallic Bedsteads. Dated February 1, 1883.
- „ 596. J. Imray—a communication from H. Giroud, of Paris, for improvements in pressure regulators for gas. Dated February 3, 1883.
- „ 771. H. H. Lake—a communication from the Harvey Screw Company (Incorporated), of Jersey, New Jersey, United States, for improvements in machinery for the manufacture of screws. Dated February 12, 1883.
- „ 1239. S. Low, junior, of 4, James Street, Bedford Row, London, for a new or improved fresh air injector or down cast water-tight ventilator. Dated March 7, 1883.
- „ 1264. J. and E. Tuckett, of Paul Street, Exeter, for an improved automatic gas regulator. Dated March 9, 1883.
- „ 1352. W. Morgan, of Birmingham, Manufacturer, for improvements in or relating to velocipedes and applicable to other vehicles. Dated March 13, 1883.
- „ 1506. E. and J. M. Verity, of Cal Lane, Leeds, Ironmongers, for an improved means of staying or holding in position swing or pivotted windows, dampers, ventilators, looking glasses, and such like things. Dated March 22, 1883.
- „ 1574. A. F. Morrison, of 63, Brown Street, Manchester, Metal Agent, for improvements in the construction of and relating to lavatories, baths, water-closets, sinks, and other similar apparatus. Dated March 28, 1883.
- „ 1661. H. Clegg, of Accrington, for improvements in the method of fixing the wooden rollers of wringing, mangling, and other machines on to their axles, and in apparatus employed for such purpose. Dated April 3, 1883.

- No. 1730. W. Spence—a communication from E. Möhlau, of Düsseldorf, Germany, Manufacturer, for an improved method of covering iron and steel with lead and its alloys. Dated April 6, 1883.
- „ 1821. T. J. Baker, of Newark, for improvements in chimney tops and ventilators. Dated April 10, 1883.
- „ 1931. J. H. Johnson—a communication from C. H. Wilcox, of New York, for improvements in or connected with machinery for sewing and trimming or cutting fabrics or other materials, the said improvements being in part applicable to other machinery. Dated April 17, 1883.
- „ 2022. R. Dolberg—a communication from C. F. A. Wienke, Civil Engineer, of Rostock, Mecklenburg-Schwerin, for improvements in lever cork screws. Dated April 20, 1883.
- „ 2050. P. A. Bayle, of 29, Rue de Chateaudun, Paris, Engineer, for a new model of glass lamp chimney that will increase the combustion and the light in every kind of lamp. Dated April 23, 1883.
- „ 2142. H. Davidson, of Tottenham, for improvements in apparatus for cutting or mincing and mixing animal, vegetable, and other substances. Dated April 27, 1883.
- „ 2145. A. J. Boulton—a communication from J. H. Whitney, of Brooklyn, New York, United States, for improvements in sewing machines. Dated April 27, 1883.
- „ 2242. F. C. Glaser—a communication from C. A. Petzold, of Berlin, for an improved apparatus for catching soot from smoke in chimneys. Dated May 2, 1883.
- „ 2546. C. E. Hiester, of Harrisburg, Pennsylvania, United States, for improvements in hammocks, and in their combination with a tricycle and a tent. Dated May 22, 1883.

PATENTS WHICH HAVE BECOME VOID :—

- No. 2355. J. Smeaton, of Moorgate Street, London, and Eddystone Sanitary Engineering Works, Howland Mews East, for improvements in valves and other arrangements, specially useful for water-closets, urinals, and such like purposes. Dated June 10, 1880.
- „ 2378. H. Brandes, of Hamburg, for improved knife and peeler. Dated June 12, 1880.
- „ 2404. C. Burgess, of Small Heath, Birmingham, Musician, for a new or improved water tap for the prevention of waste or the possibility of freezing. Dated June 14, 1880.
- „ 2415. J. Moore, of Balham Hill, London, for an improved stove for consuming smoke. Dated June 15, 1880.
- „ 2424. W. R. Lake—a communication from C. Heaton, of the Heaton Emery Works, Ballston, Spa, New York, United States, for improvements in emery wheels or artificial grindstones. Dated June 15, 1880.
- „ 2434. W. and W. T. W. Simpson of Sheffield, and J. Wilkinson, of Malin Bridge, Hillsbro', Yorkshire, for an improved method of and appliance for securing the blades of scissors, shears, surgical instruments, and other similar articles. Dated June 16, 1880.
- „ 2465. J. Wetter—a communication from J. Powell, of Cincinnati, Ohio, United States, for improvements in nickel plating. Dated June 18, 1880.
- „ 2472. G. W. Dawson, of Indianapolis, Indiana, United States, for improvements in apparatus for filtering water. Dated June 18, 1880.
- „ 2518. O. Sheppy, of Bath, Tea Dealer, and proprietor of the Turkish Bath, for improvements in apparatus for heating and ventilating. Dated June 21, 1880.

- No. 2519. W. A. Barlow—a communication from O. Von Wiersbitzky, of Leipzig, for improvements in the manufacture of metal articles having surface ornamentation. Dated June 21, 1880.
- „ 2556. G. W. Von Nawrocki—a communication from T. Kuhne, of Schwelm, Westphalia, Germany, for improvements in the manufacture of nails, and in machinery therefor. Dated June 23, 1880.
- „ 2563. H. W. Everard, of Manchester, Manufacturer, for a new or improved fastening for suspending stockings and for other purposes. Dated June 23, 1880.
- „ 2565. T. Fenwick, of Stockton-on-Tees, Nickel Plating Works, Manager, for improvements in apparatus for polishing, cleaning or dressing metals or other materials. Dated June 23, 1880.
- „ 2570. W. B. Shorland, of Barton-on-Irwell, and Manchester, for improvements in adjustable spindles for locks, latches and handles, and in securing the knobs or handles thereon. Dated June 24, 1880.
- „ 2576. E. R. Kimpton—a communication from J. A. Whelpley, of Greenwich, New Brunswick, for improvements in skates. Dated June 24, 1880.
- „ 2591. H. J. Lawson, of Coventry, for improvements in the construction of velocipedes and in apparatus in connection therewith. Dated June 25, 1880.
- „ 2621. W. R. Lake—a communication from F. Fabre, of Paris, for an improved apparatus for facilitating the measuring and cutting out of cloth or other material. Dated June 26, 1880.
- „ 2622. W. Watson, of Lythe, Whitby, Yorkshire, for improvements in apparatus for grinding tools. Dated June 26, 1880.
- „ 2628. P. F. Mantelet, of Paris, for improvements in apparatus for clipping or shearing horses, sheep, and other animals. Dated June 28, 1880.
- „ 2633. G. M. Cruikshank—a communication from C. Roy, of St. Dizier, Haute Marne, France, for a new or improved process and apparatus for rapidly drawing metals into wire. Dated June 28, 1880.
- „ 2650. J. Symes, of Dublin, for improvements in the construction of bicycles. Dated June 29, 1880.
- „ 2653. C. Toft, of Basford, Stoke-upon-Trent, Artist, for improved construction of tea pots, coffee pots, jugs, and other such like vessels having loose lids. Dated June 29, 1880.
- „ 2687. W. Ross, of Crane Court, Fleet Street, London, for improved apparatus for sweeping chimneys. Dated July 1, 1880.
- „ 2689. G. Leidman, Gentleman, and C. Beeger, Mechanic, both of Berlin, for improvements in velocipedes and in the means of propelling the same. Dated July 1, 1880.
- „ 2700. S. Wilkes, of Sedgley, Staffordshire, for improvements in the construction of metal gates, hurdles, palisading, fencing, tree guards, verandahs, balconies, and other similar articles. Dated July 1, 1880.
- „ 2723. M. Stobbs, of Grosvenor Road, Pimlico, London, for improved appliances or apparatus for adjusting springs for doors, gates, windows, ventilators, and the like. Dated July 3, 1880.
- „ 2781. E. Taylor, of Salford, Lancashire, and Stockport, Cheshire, for improvements in the construction of driving and reversing gear for washing, wringing, and mangling machines. Dated July 7, 1880.
- „ 2973. J. Jones, of Swansea, Ironfounder, for improvements in the construction of annealing pots for tin plates. Dated July 7, 1880.

- No. 2453. W. R. Lake—a communication from F. G. Neidringhaus, and W. F. Neidringhaus, both of St. Louis, Missouri, United States, Manufacturers, for an improved method or process of enamelling iron. Dated June 14, 1876.
- „ 2483. J. Dobbie, of Glasgow, Ironmonger and Stove Manufacturer, for improvements in American stoves or close cooking ranges. Dated June 15, 1876.
- „ 2512. T. B. Cox, of Bloxwich, Staffordshire, Aul-blade and Lasting-tack Manufacturer, for improvements in the manufacture of steel lasting tacks and in the machinery used therefor. Dated June 17, 1876.
- „ 2548. M. H. Pearson, of Leeds, for improvements in sewing machines, and in the means and apparatus employed for transmitting motion to the same. Dated June 20, 1876.
- „ 2632. R. J. Hutchings, of Treforest, Glamorganshire, for improvements in machinery or apparatus for manufacturing tin, terne, and metal plates. Dated June 26, 1876.
- „ 2672. W. R. Lake—a communication from H. A. Chapin, and S. P. Gilbert, both of New York, for improvements in lamps and lamp burners. Dated June 28, 1876.
- „ 2700. L. L. Barber, of Boston, Massachusetts, United States, for improvements in cutting attachments for sewing machines. Dated June 30, 1876.
- „ 2717. C. J. Ball—a communication from J. Decoudun, of 77, Rue de Montreuil, Paris, for improvements in apparatus for ironing and finishing linen and other fabrics. Dated July 1, 1876.
- „ 2740. C. G. Hill, of Nottingham, for improvements in pleating machines. Dated July 4, 1876.
- „ 2760. J. G. Hammond, and T. T. Lecher, both of Birmingham, Manufacturers, for improvements in screw stocks. Dated July 6, 1876.

SPECIFICATIONS PUBLISHED DURING THE MONTH.

Postage 1d. each extra.

	1881.	s.	d.
No. 5186. M. H. Pearson, sewing machines	0	2	
	1882.		
„ 4103. P. B. Standring, knitting machines	0	2	
„ 4707. G. E. Vaughan and J. Walton, stand for supporting bicycles, tricycles, and velocipedes during stationary practice, and distance registering apparatus connected therewith.. ..	0	8	
„ 5065. A. J. Boulton, apparatus for soldering.. ..	0	2	
„ 5066. L. Bagger, ratchet wrenches	0	6	
„ 5087. R. C. Fletcher, velocipedes	0	2	
„ 5093. H. and T. A. Greene, apparatus for domestic purposes to be used with gas.	0	2	
„ 5094. H. and T. A. Greene, using argand burners.. ..	0	2	
„ 5095. H. and T. A. Greene, governor for regulating the supply of gas, &c.	0	6	
„ 5124. A. W. L. Reddie, alarm bells or gongs for doors, &c. ..	0	6	
„ 5125. A. J. Boulton, door checks or governors	0	6	
„ 5135. J. B. Brooks, saddles for bicycles and tricycles ..	0	2	
„ 5146. J. Patterson, washing fabrics.. ..	0	2	
„ 5179. G. Browning, sewing machines	0	8	
„ 5185. J. Ganter, securing the pendulum of clocks.. ..	0	2	
„ 5186. J. Wetter, stove pipe attachments	0	2	
„ 5204. T. Thorp, gas lighting and regulating apparatus ..	0	2	
„ 5209. F. Simmons, sewing machines	0	2	
„ 5219. J. Y. Johnson, refrigerating or cooling rooms, &c. ..	0	6	
„ 5234. G. Singer and W. R. Davies, bicycles and tricycles ..	0	2	

No. 5238.	A. H. Robinson, apparatus for use in connection with lamps or other burners for illuminating and heating purposes	0 2
„ 5247.	J. H. Topham, apparatus for heating water by gas jets as rapidly as it issues from the supply pipe	0 2
„ 5250.	W. D. Scott-Moncrieff and W. Dodds, valve apparatus for supplying baths, &c., with water	0 6
„ 5259.	A. E. Crisp, window fasteners	0 6
„ 5266.	R. Chapman and J. Hibbert, apparatus for closing doors and windows	0 6
„ 5274.	A. M. Clark, means for attaching hat pegs, coat hooks, curtain holders, wall brackets, gas brackets, chandeliers, and other objects to walls and ceilings	0 2
„ 5299.	J. V. Hope, finishing the interior of hollow ware	0 6
„ 5300.	A. J. Boulton, electro-plating with nickel and cobalt	0 4
„ 5301.	R. G. Hodgetts, manufacture and ornamentation of metallic bedsteads, &c.	0 8
„ 5307.	R. E. Phillips, velocipedes, &c.	0 8
„ 5310.	J. G. Whyte, cooking ranges, &c.	0 6
„ 5312.	J. Bartlett, gas stove for heating water for baths, &c.	0 6
„ 5329.	C. D. Abel, portable baking ovens	0 2
„ 5332.	E. P. Chaimsonovitz, production of light and heat apparatus therefor	0 5
„ 6335.	J. F. Allan, tool holders	0 4
„ 5336.	G. Kenworthy, apparatus for beating or whipping eggs, cream, &c..	0 2
„ 5337.	G. A. Schoth, apparatus for mixing air and combustible vapour for lighting, and burners for same	0 6
„ 5343.	C. J. Henderson, gill stoves, &c.	0 2
„ 5347.	R. Crane, smokeless stoves and grates	0 2
„ 5350.	H. Thresher, driving gear for velocipedes, &c.	0 2
„ 5352.	B. Schoof, paper holder for use in water closets	0 2
„ 5358.	E. A. Brydges, transportable baking ovens	0 6
„ 5361.	J. P. Rothwell, washing, wringing, and mangling machines, &c.	0 8
„ 5362.	J. Ungar, lamps	0 6
„ 5364.	H. S. S. Watkin, tricycles and other velocipedes	0 2
„ 5369.	J. Noad, H. Blackwell, jun., and H. B. Bunkell, velocipedes, &c.	0 2
„ 5375.	A. J. Boulton, folding pocket scissors	0 6
„ 5378.	R. Plush, means for securing or fastening the sliding sashes of windows	0 2
„ 5383.	J. J. Tylor, apparatus and arrangements for the water supply of water-closets, baths, and urinals, and preventing waste, &c.	0 6
„ 5413.	F. O. Schmidt, circular shuttles with inserted spool for sewing machines, &c.	0 8
„ 5415.	F. Weldon, velocipedes	0 2
„ 5417.	R. Howarth, bolts and nuts	0 6
„ 5427.	W. J. George, tricycles, &c.	0 2
„ 5435.	R. C. Stevens, apparatus for heating and ventilating &c.	0 6
„ 5447.	G. and E. Atkins, sliding gasaliers and chandeliers	0 2
„ 5450.	W. P. Thompson, apparatus for filtering	0 2
„ 5451.	W. R. Lake, sewing machines	0 4
„ 5468.	W. J. Fraser, wheels of carriages, velocipedes, &c.	0 6
„ 5470.	S. B. and S. J. Whitfield, metallic bedsteads, and bedstead bottoms, and castors for same, &c.	0 6
„ 5489.	T. Hancock, screw bolts and nuts	0 2
„ 5496.	S. Slater, stoves	0 2
„ 5516.	H. H. Lake, handles or holders for use in carving meat, &c.	0 4
„ 5521.	W. H. Beck, sewing machines	0 2
„ 5549.	E. Baldwin, handles for saucepans, &c.	0 4
„ 5562.	H. Salsbury, lamps and their burners	0 6
„ 5584.	W. R. Lake, electric bell	0 6
No. 5589.	W. Trafford, manufacture of sewing silk and other thread, &c.	0 2
„ 5590.	T. Kendrick, metallic bedsteads, mattresses, bed-bottoms and bolsters	0 2
„ 5593.	J. F. Smyth, making and striking stamped, impressed and embossed plates, discs, &c.	0 6
„ 5597.	S. Walker, manufacture of steel and iron tubes	0 2
„ 5598.	F. Greatex, construction of stoves, &c.	0 6
„ 5599.	H. J. Hissett, tricycles, &c.	0 6
„ 5626.	H. Sutcliffe, manufacture of metal cisterns, &c.	0 6
„ 5629.	J. Hix, bicycles, tricycles, &c.	0 2
„ 5635.	H. H. Lake, shears for cutting paper, &c.	0 4
„ 5636.	T. Carder, preventing the flow of sewer gas into buildings	0 2
„ 5637.	R. D. Sanders, fret saw machines	0 6
„ 5642.	H. J. Allison, forks or tongs, chiefly for domestic purposes	0 6
„ 5648.	H. Roberts, drawing, annealing and pickling wire, &c.	0 10
„ 5649.	H. Roberts, manufacture of zinc-coated wire &c.	0 8
„ 5658.	W. R. Lake, machine for securing buttons upon leather or other material	0 10
„ 5661.	W. R. Lake, apparatus for automatically winding up clockwork	0 6
„ 5666.	W. Hiscock, letter balances	0 2
„ 5667.	S. Goodby, sen., tools for cutting and reducing tubes, &c.	0 6
„ 5699.	G. W. von Nawrocki, adjustable sorting or separating sieve	0 4
„ 5707.	J. Simpson and S. T. Fawcett, wheels for perambulators, &c.	0 6
„ 5795.	J. Whitehouse and S. Peacock, sash fastenings	0 6
1883.		
„ 44.	H. J. Allison, knitting machines	0 8
„ 297.	G. Macaulay-Cruikshank, automatic locking devices for nuts, bolts, &c.	0 6
„ 811.	F. Lotter, manufacture of nickel and cobalt, &c.	0 4
„ 1204.	W. R. Lake, tongs for domestic purposes	0 6
„ 1345.	W. R. Lake, sewing machines	1 0
„ 1468.	P. M. Justice, lasting machines	1 2
„ 1494.	W. R. Lake, skiving and trimming machines for manufacture of leather	0 6
„ 1562.	S. Pitt, sewing machines	0 4

A TOOL, after it has been forged, should be so hardened or tempered that it will never want to come to the fire again until it is so worn down that it requires re-forging. This accomplishes two things; first, it saves the time lost in a second hardening; and in the second place it avoids the damage always done to the cutting power by rehardening without forging.

THERE is nothing better than benzine to cleanse grease from machinery or clothing.—Such is its peculiar solvent power for grease and fat that even old files that have been injured in their cutting quality by grease, may be improved by it. To clean greasy clothes, put the benzine on the greasy spot and rub the solution out before the benzine has had time to evaporate and leave the grease remaining in the fabric.

NEVER apply varnish with a rag; always use a brush and have the brush clean, soft, free from grit or dirt, and see that the hairs are well fastened to the handle. If the varnish shows streaks or brush-marks, it is too thick or the room may be too cold. If the former, thin with the same liquid with which it is made; if the latter, warm the room or the work, but a warm room produces the best results. Varnishes should be well strained after making and before using.

AMERICAN COMMERCIAL TRAVELLERS.

"OFF again?" I said to a well dressed man hurrying along with a travelling-bag in one hand and a shawl in the other. "Where are you bound now?" He was a commercial traveller, and worked for one of the largest houses in the city.

"Yes," he replied cheerily, "I'm off again; I am always off, and never on. I don't know my own wife. I am going to stay at home long enough to become acquainted with her, if I can. She seems to be a nice kind of woman. I've got to catch the train at Forty-second-street within an hour. Jump in the car and go a little way with a fellow, can't you? That's the only way I can say how d'ye do to my friends." I did as he requested, following the Biblical injunction, "If a man compel you to go a mile, go with him twain."

"This is a queer sort of life you lead," I said, on being seated. "Don't you enjoy going about seeing the country, living at first-class hotels, riding in palace-cars, smoking the best cigars, flirting with all the pretty girls you meet, and, in a word, making a long spree of life, all at other people's expense? Seems to me, a commercial traveller has a mighty easy berth of it. I'd like to be one myself."

He listened to all I said with an amused twinkle in his eye, and replied: "Well, now, it is strange that about every man outside of the business has just exactly your idea of it—which is just exactly the wrong one. There never was a more incorrect idea of the duties and animus of commercial travellers than the popular one. Why, man alive," he said, spiritedly, "you musn't suppose that the merchants of New York are idiots, or that they lose sight of us immediately we leave the store. They know all about us, and we know that they know it, and take care that they shan't know any harm of us."

"Our calling is our bread and butter, and we have to earn it by the hardest kind of labour. You needn't laugh; it is so. Business of all kinds now-a-days is done by actual personal representation and solicitation. A merchant has certain kinds of goods which he puts on the market; he advertises them fully, and then follows up his advertisements by his travellers, and rakes in all he can. Commercial travellers are more numerous to-day in all lines than ever before. Wherever you see a smart, active man going from store to store in suburban cities, talking with the proprietor confidentially, and producing a memorandum-book in which he makes notes from time to time, that man is a commercial tourist, as we call ourselves for fun, and is doing as much business in his way for the house as they do for themselves. No firm can get along without them. Some have twenty travellers scouring the country at the same time, and others have two or three, according to their line and extent of trade. You spoke of our seeing the country! You'd laugh if I told you that I never saw Niagara falls in my life until I was thirty-five years old; though I had been within two miles of it hundreds of times! It is so. I never had time. At last I was ashamed of it, and absolutely took a day, and wrote the house I was going to the Falls on the spree. I went there and stayed there a couple of hours, and happening to think of a man I wanted to see in Buffalo, took the first train for that city, and let the Falls go to pot; fact is, when I'm on business, I can't take the pleasure in fun. I scarcely know one place from another except by the business houses in them; and as for the scenery, the finest scenery I know of is a merchant calling at your hotel two

or three times before you arrive, wanting to know if you haven't come yet, as he can buy a bill of goods of you.

"We do not stop at first-class hotels, and we always get just as good accommodations as there are in the house. Why? Because we pay our bills; because we are the biggest kind of advertisement for a hotel, and the men who know how to keep one understand that fact. We can send hundreds of dollars' worth of business to a hotel or drive hundreds away from it, simply by reporting to each other how we are treated. We get together in smoking cars and in our rooms at nights, and detail every mean act or petty extortion, and you bet landlords don't make any millions out of us by crowding. Some of us have our regular rooms, best family rooms, too, we occupy every month for years, and we always get them, every time, no matter who is in them. The head waiters knows us like a book, and so do the boys; and you bet we don't get any tenderloin steaks or boiled chickens or birds and things. Oh, no! they ain't for us."

"Certain towns are celebrated for their mean hotels. Providence, R.I., was until a few years since. The meanest of all mean houses, eight or nine years ago, was the City Hotel. For a place of 80,000 inhabitants, it used to be a wonder to us why such a hole was in existence; but it was the only one in town, and we had to go to it. The boys got so they used to do their business in a day, and then go to Boston, 50 miles off, and stay rather than sleep in the town. I believe it is better now. It makes a mighty sight of difference to a man who works 12 to 14 hours a day, as we do, talking and walking all the time, what kind of fare he gets; he can't have any too good, and a sensible man knows it. How is a man to have any spunk or spirits in him after riding, say, 500 miles a week, and talking all the time, except when he's asleep, if he is disturbed by bugs or fed on bull beef or slops generally? He can't do it. Can't ride 500 miles a week and do any business! Young man, we work all day and ride all night. That's the way we do it, except in big towns like Buffalo or Chicago; there, of course it's different."

"Samples! yes, of course, we carry samples; some of us have a half a dozen big trunks full of 'em; regular store in itself to lug around. Drygoods, hats, boots, and shoe men, all of 'em, and at the end of their trips they sell the lot for what they can get to some Cheap John—trunks and all, unless they are sample-trunks made on purpose for their business. Some have samples they carry in hand, and they are the worst of all. Cutlery men catch it heavy on these. They ain't heavy enough to put in the baggage-car, but they have to be toted round from store to store; weigh 25 pounds some of 'em. You take one of them, carry it all day in a country town or city, talk all the while, and perhaps make no sales after all—find some chap has been ahead of you and done it all for you, and when it comes night, if you don't feel tired, you're a horse, that's all."

"Big bill of expenses! Well, that depends on where and how you travel. In the Eastern States, where distance are short, and hotel charges are small in the towns, the expenses are very slim—2 dols. 75c. to 4 dols. a day, unless you hire a horse too often, covers it all; but when you get to Boston or Philadelphia, or go West, the scene changes, and you can't go decently for less than 6 dols. and 8 dols. per day for legitimate outlay. That's what it will cost a day in and day out. For five years my account, furnished in detail, from New York to Chicago, not stop-

ping at every little town, but only at big places on the New York Central, like Syracuse, Utica, Rome, Rochester, &c., was 6 dols. 90c. per day, exclusive of salary, of course. A man can spend as much as he likes. Entertaining customers covers a multitude of sins, and there's lots of fellows spend 3 dols. and 4 dols. a day in this way, but the customers don't get much of it. Common-sense tells a man or a house that a traveller must have a thundering trade to spend so much every day. I told our folks that if they found any item for whisky or cigars in my bill to charge it to my account; and as for entertaining customers, I don't have to buy my trade. I make it fair and square: they pay me for the goods, and that settles it. I want my head clear—not full of whisky and tobacco, if I am going to travel.

"What do you get? Oh! certainly, that's a fair question; no offence, whatever. We get just what we are worth, like every other man in the world. Our salaries vary from 800 dollars per year and expenses to 5,000 dollars and ditto. For me, I get 3,500 dollars, which is fair, I consider, though I earn every cent of it. My house is a good one to work for; that's one comfort. They never write me scolding letters, blowing me up when I have done my best, but they say, 'Mr. Jinks, you have had a hard trip this time—better go home for a few days and see your wife, and then come back and try it again.' I can't keep away from the store two days at a time, though. We represent the house, you know, away from home, and shrewd merchants take care that their representatives shall be worthy of them. Why, many a big house in this city depends more upon its travellers than upon its partners for trade and sagacity in conducting it, and if they lost them they would be in a box. I have known travellers to stand by the concern, voluntarily accept a reduction of salary, cut their expenses all they could decently, and work hard, when they know the house was in a tight place; and their efforts were in no small degree contributive to final success.

"Black sheep in the business! Certainly there are; just as many as there are in any other profession; and they make so much noise, live so much in the public eye, that they get the whole of us a bad name sometimes, but that affects us very little; they don't get far; their career is soon terminated. The telegraph is too long now-a-days and reaches too far for a man to cut up many didoes. First thing he knows in one of his drunken sprees somebody telegraphs or writes to his folks that their traveller has been drunk about town five or six days and they had better get him home, which they do mighty quick. Then again there are men who smouch 10 dollars or 15 dollars a week by representing that they have been to such and such places, when all that they did was to talk to a merchant from town whom they met by chance on the platform of another place fifty miles away; they charge travelling expenses all the same, but such things are, like all other things of human swindling and dishonesty, found out sooner or later. Then again there are men who pick up loose women and go about hotels with them, thinking that nobody knows them or their company, but they soon get undeceived on that point by hearing of it in many ways. You musn't judge all travellers by the misdeeds of a few, for no class of men work harder or more faithfully than they do.

"Get snubbed sometimes! I don't understand you. Rebuffed! Why, who should rebuff me? I ain't no boot-

black or matchpedlar! It is no favour a man does to me to buy my goods. He knows that as well as I do. You don't rebuff your grocer, do you, when he brings your order in, or your butcher? Not much. I'd like to see the man I couldn't approach. All men are approachable in one way or another; if you know your business, you know how to meet them. No merchant ever tried to put on any airs with me, simply because I always respect myself. It don't take long to see that. A good many men are sent out in driving times who never ought to be on the road at all, and they get rebuff right and left. I'd rebuff 'em myself. I remember one young man who was standing in a store when I entered; the proprietor came up to me and began talking, but stopped and turned to the fellow still standing there.

"Well," he said, "you have your answer; what are you waiting for?" "I'm waiting for an order," says the bright young merchant. "Our folks told me never to leave a store until I got an order, and you haven't given me any, so I thought I'd wait." The merchant laughed, and finally persuaded the young man to leave, very disconsolate, without an order.

"Here we are at the depot at last." And swinging off the platform, he shouldered into the crowd and went his way.

THE USE OF NAMES.

The case of *Freeman v. Freeman*, just decided, raised some curious reflections as to the right of a man to use his own name for the purposes of commerce. There are many articles which are really household words in the mouths of the people, and are yet distinguished by no particular device or trade mark. For instance, you could scarcely find in the United Kingdom a person who has not heard of "Pears' Soap," and as such it is universally known and asked for. Yet question buyers, and some few may know it is sold in a round and oval shape, and usually wrapped in a white paper with black printing. Would it not, then, be obviously unfair for any person whose real name was Pears, and who wished to bring out soap, to call his production "Pears' Soap"? Unscrupulous persons for extra profit would undoubtedly sell it as "Pears' Soap," and the customer would be deceived. Even supposing the shape altered—put in red or yellow wrappers, with printing altogether different—yet the words "Pears' Soap" would deceive. Many other articles might also be mentioned—for instance, "Nixey's Black Lead," "Epps's Cocoa," "Colman's Mustard," and in this case "Freeman's Baking Powder." All this tends to show that a man must be careful how he uses his own name in designating any article he may make if his name happens to be the same as that of a manufacturer of a popular speciality of a similar character.

TO BRIGHTEN IRON.—The following method of brightening iron, which appears to be suitable for some of the less important parts of large clocks, is recommended by Boden. The articles to be brightened are, when taken from the forge or the rolls, in the case of such articles as plate, wire, &c., placed in diluted sulphuric acid (1 to 20) where they remain for about an hour. This has the effect of cleansing them, and they are washed clean with water, and dried with sawdust. They are then dipped for about a second in commercial nitrous acid, washed carefully, dried in sawdust, and rubbed clean. It is said that iron goods thus treated acquire, without undergoing any of the usual polishing operations, a bright surface having a white glance. Care should be taken by any one using the nitrous acid not to inhale the fumes.

THE LARGEST

THE LARGEST SEWING

THE LARGEST SEWING MACHINE

SEWINGMachine "Belt"
Manufacturers.**MACHINE**

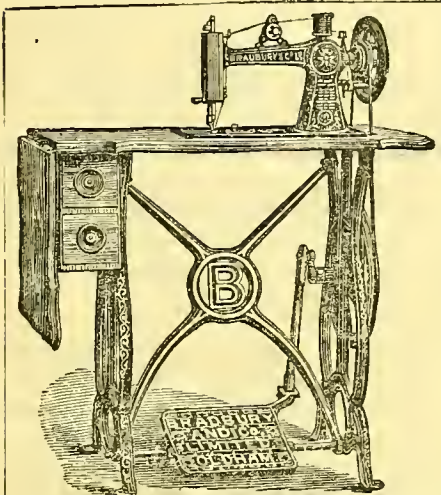
Oil

Manufacturers.

FITTINGS

Warehouse.

Bishop's Cluster Company, Limited, 25, Hamsell St., London, E.C.



No. 3—ROTARY SHUTTLE MACHINE, THE
QUICKEST LOCKSTITCH IN THE WORLD,
2,000 STITCHES PER MINUTE.

BRADBURY & CO., LIMITED, SEWING MACHINE MANUFACTURERS, WELLINGTON WORKS, OLDHAM.

BRADBURY & CO., LIMITED, are not only the oldest and largest European Makers, but they also make the greatest variety of Machines for all general purposes; they are thus able to supply any class of customers with Machines suitable for their requirements, and are not compelled to recommend *one system only* for all descriptions of work. Their Machines surpass all others in

**SIMPLICITY, RAPIDITY,
DURABILITY AND FINISH.**

They have been awarded
MORE GRAND PRIZE MEDALS
than all the other
EUROPEAN MANUFACTURERS COMBINED.

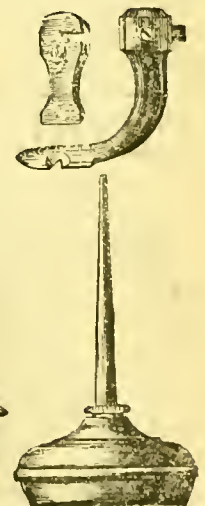
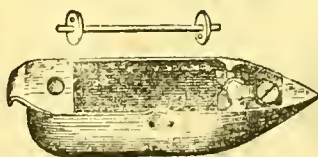
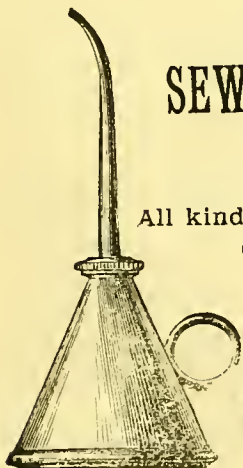
Depots in all the principal Towns of the Country.
LIBERAL TERMS TO SHIPPERS AND MERCHANTS.

GOLD MEDAL—PARIS, 1872
GOLD MEDAL—LYONS, 1872.
GRAND MEDAL OF PROGRESS—VIENNA, 1873.
GOLD MEDAL—LONDON, 1874.
GOLD MEDAL—MANCHESTER, 1874.
GOLD MEDAL—PARIS, 1878.
GOLD MEDAL—PARIS, 1879.
GOLD MEDAL—ADELAIDE, 1881.
GOLD MEDAL—

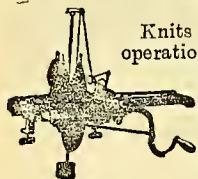
PERTH, W. AUSTRALIA, 1882.
AND
TEN FIRST PRIZES
AT LOCAL EXHIBITIONS
DURING 1882.

WILLIAM ANDREWS, SEWING MACHINE SHUTTLE MANUFACTURER, 3, STEELHOUSE LANE, BIRMINGHAM.

All kinds of Shuttles, Reels, Feet, Clutches, Needle Plates.
Oil Cans, Sarudene's Oil in Bottles, Machine Bands.
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STOCKING KNITTER.



Knits Ribbed or Plain, any size, 2 Stockings at one operation. Knits every variety of Jackets, Petticoats, &c., Cardigan, Fancy or Plain, exactly same as hand.

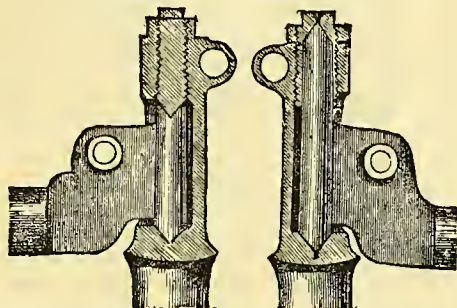
This Knitter obtained the First Prize over others in competition at the Woollen Exhibition, Crystal Palace, London, 1881. 21 New Improvements. List 1d. stamp.

W. HARRISON, Patentee,

128, PORTLAND STREET, MANCHESTER.

ANDREWS' IMPROVED HEAD.

(SEE ILLUSTRATION.)



RECENT CONTESTS WON ON ANDREW'S MACHINES.

Aston, Birmingham.—"The Speedwell Challenge Cup" for 10 miles, by C. A. Palmer.

Liverpool.—North of England Challenge Cup, 5 miles, and 2 miles open.

Isle of Man.—1, 2, and 5 miles Handicap, from scratch.

Lincoln.—Two Miles Handicap, from scratch, by F. Clarke Manchester.

Glasgow, Queen's Park.—The Two Miles from scratch, by Lamb, of Edinburgh.

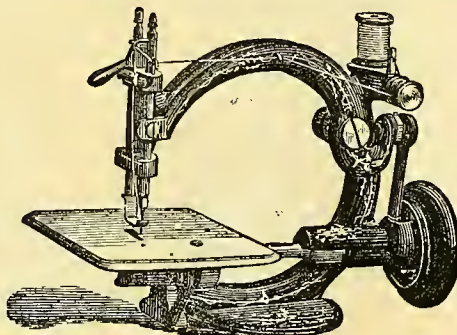
WM. ANDREWS,

Maker of the Celebrated "Sanspareil" Bicycle,
STEELHOUSE LANE, BIRMINGHAM.

Agents.—W. N. Patterson, 36, Deansgate, Manchester; Messrs. Robinson & Price, Pembroke Place, Liverpool; Messrs. Egddell & Co., 60, Northumberland Street, Newcastle-on-Tyne, where a Stock of the above Machines may be inspected

CHARLES J. THURLOW,

MANUFACTURER OF
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Either for Hand, Treadle, Stand or Power,
Lathes from 3½ inch upwards.

39, CHESTER ST., HULME,
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THE BUGLET.

PRIZE MEDAL.



THE BUGLET.

PRIZE MEDAL.

The only Bugle ever made having 4 turns. *The Easiest, Best, Smallest, Cheapest Strangest*, 6 inch by 2, oval, 4 Turns. Over 2000 now sold. Brass, 17/6 Copper, 18/6; Special Club, 20/6, 21/6; Nickel, 23/6, 26/6; Silver Plated, 30/6. Engraved 42/6; Prizes, 2 to 3 Gs.; Valves for Buglet, 27/6; 1 Turn Bugles, 3/6; 2 Turns 4/6; 3 Turns, 6/6; Oval, 6/6 to 8/6; New Model Round Bell, 9/6; Oval Bell, 2 Turns, 12/6; 3 Turns in C, 14/6. Send for New Lists, Testimonials, 100 Illustrations. Agents' New Show Card.

The Largest Makers of Horns and Bugles in England.

HUNTING, STAG, DOG, COACH, MAIL, BEAUFORT, DRAG, TANDEM POST SADDLE, WHIP, KOENIG, BICYCLE, TRICYCLE; &c., HORNS. Hunting Horns, ordinary, from 5/-; Superior Solid German and other Special Styles, from 10/-; Silver Mounts from 20/-; Sterling Silver from 3½ Guineas; Mail Horns, ordinary German Silver Mounts and Mouthpiece, and solid wire on Bell, from 10/-; superior, 12-in. Ferrule, &c., from 15/-; Keat's Special, 3½ Bell, Ribs, or Solid German Silver, from 20/-; Keat's Telescope, model, from 25/-; Cases Baskets, Engravings, Inscriptions, Repairs, and all Fittings. Gratis with Purchase, "Instructions to Learn Bugles and Coach Horns, Four Pages, or Post Free, 2 Stamps.

THE BICYCLISTS' CORNET, 7 by 4½, from 3 Guineas. Also for all other Musical Instruments, to HENRY KEAT & SONS (Inventors of the Buglet), Manufacturers, Government Contractors, and Export Factors, 105, MATTHIAS ROAD LONDON, N.

ANOTHER AMERICAN INVENTION.

THE "FAIRY" SEWING MACHINE.

A COMPLETE HAND MACHINE.

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EXCELLENT WORKMANSHIP.

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ONLY 15s.

Trade Discount, 33½ per cent.

BEAL, Corn Market, Halifax.

TO INVENTORS. GENERAL PATENT OFFICE

ESTABLISHED 1830.

G. F. REDFERN,

(Successor to L. De Fontainemoreau & Co.),

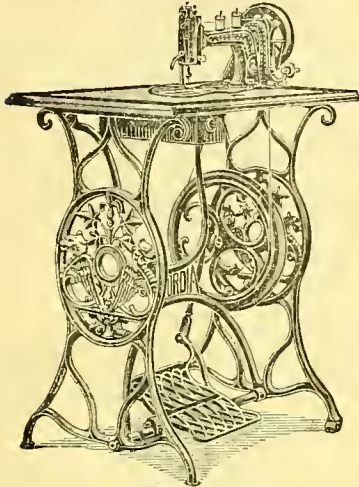
4, SOUTH STREET, FINSBURY, LONDON;

ALSO AT

PARIS AND BRUSSELS.

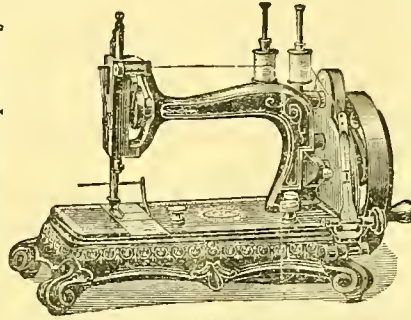
Provisional Protection, £7; French Patent, £7; Belgian, £8; German, £10 10s.; United States, £17 10s. Designs and Trade Marks Registered. Circular gratis on application.

GRIMME, NATALIS & Co., Limited, BRUNSWICK (GERMANY), Sewing Machine Manufacturers.



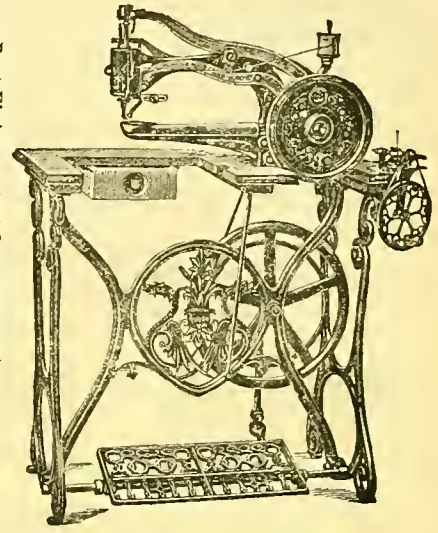
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Machine. Specially Recommended
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Best Finish, latest Improvements.



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Of every description of

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AWARDED THE SILVER MEDAL
AT THE

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North Lancashire Agricultural
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PRESTON GUILD.

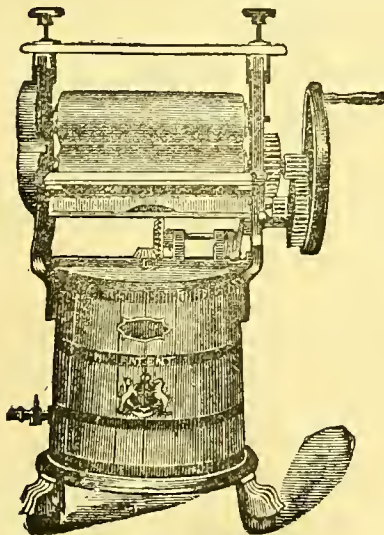
TESTIMONIAL FROM

THOMAS HUDSON, Esq.,
Hardware Merchant,
Shudehill, Manchester.

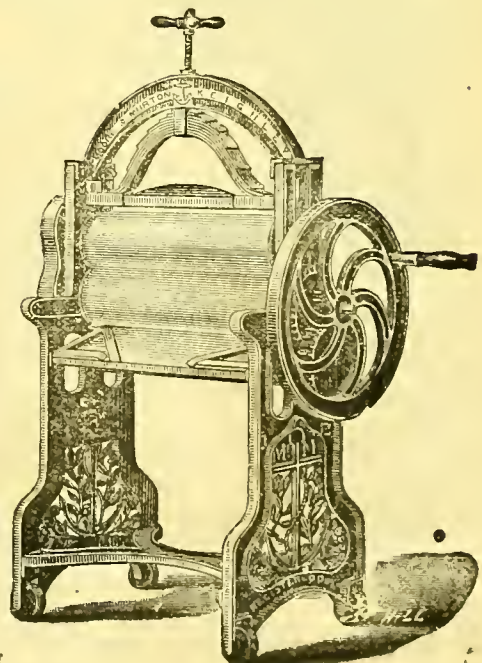
Gentlemen,

Having sold some *Thousands* of your
Machines during the last few years, I
have great pleasure in stating that I have
found them to give universal satisfaction
to my customers in general, and can with
confidence recommend them as being
the best I have ever bought.

Yours truly,
THOMAS HUDSON.

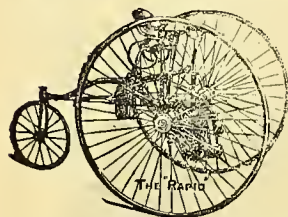


American Agents:
FWLER & Co.,
EAGLE WORKS,
LOUISVILLE, KY.



THE "RAPID" TRICYCLE.

DR. BURTON, of 14, SPRING HILL, BIRMINGHAM, in a letter to the *British Medical Journal*, June 2nd, 1883, says:—



"Last September I bought from the St. George's Foundry Company, Pope Street, Birmingham, one of their "Rapid" Tricycles. It is a double-speeded Machine, enabling one to ascend even steep hills with tolerable ease and at a fair speed. When speeded for ordinary roads it travels at the rate of a little over four yards for each revolution of the crank-shaft, and when geared for hill climbing, at the rate of three yards for each such revolution. In going down inclines, it is thrown out of gear, the feet resting on the pedals, and the pace readily controlled by the brake. It is very strongly built, in proof of which, I have had it out on all sorts of roads since September, and it works easier and is better now than when new.

"I can honestly recommend this Tricycle as serviceable, reliable and economical. In this hilly town I can, with its aid, visit nearly as many patients in a given time as I formerly did with a good horse. But, more than all, in spite of the continuously wet weather we have of late experienced, my general health has improved greatly by this exercise. For five years before I had it I suffered almost constantly from arthritic rheumatism and sciatica; since I have used it both these enemies have disappeared. For night work it is invaluable."

Full particulars on application to the Patentees and Manufacturers—

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AND
8, CHARTERHOUSE BUILDINGS, ALDERSGATE STREET, LONDON.

NYE'S SPERM OIL.

THE BEST IN THE WORLD FOR SEWING MACHINES, &c.

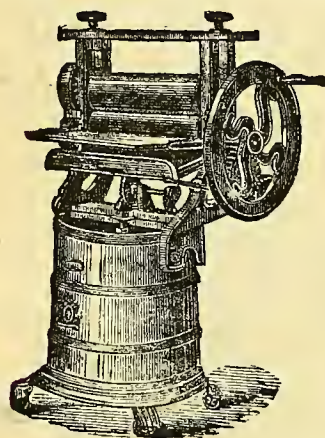
MANUFACTORY—BEDFORD, MASS., U.S.A.

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Paul's Bakehouse Court, Godleman Street,

Agent for 1 and 2 Knife Cleaners

LONDON, E.C.



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MANUFACTURERS OF
WASHING, WRINGING, AND MANGLING
MACHINES,

Fruit Dresser, Sugar Cutter, Chaff Cutter,
MORTICING MACHINES AND CIRCULAR SAW BENCHES.

PRICE LIST ON APPLICATION.

Manufactory—Royal Ironworks, Halifax Road. Keighley.
London Office—5 New Street, Bishopsgate, E.C.

BUTTON HOLE MACHINE.

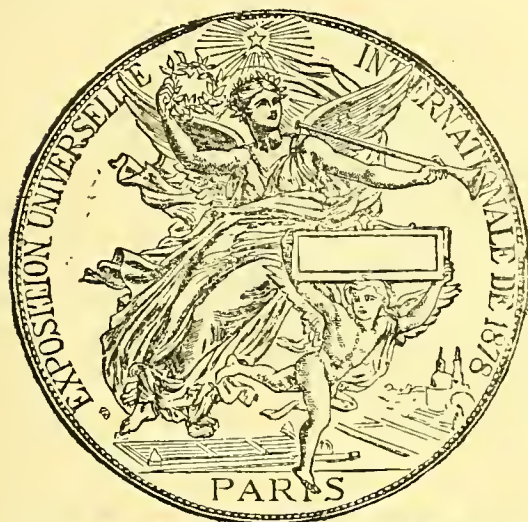
The New American No. 3 Button Hole Machine for Boot Manufacturers is unrivalled.

From 5 to 10 Dozen Button Holes per Hour can be made.

PRICE £12 10s.

Samples of Work sent Post Free. Thousands of these Machines have been sold.

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OF THE

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WM. BARBOUR AND SONS, LISBURN, IRELAND:

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ONLY GRAND PRIZE

Given to the Linen Thread Trade of the World.

Grand Medal.

First Prize Medal,

First Prize Medal,

For Progress,



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Philadelphia, 1876.



Philadelphia, 1876.



Vienna, 1873.

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Threads specially made for the Blake Sole Sewing Machines, for the Crispin, Whittemore, Mills and Blake Pump Machines. Also WAX THREADS for the Pearson and Other Machines, used in Sewing Leather

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First Prize Medal,

CABLE-TWIST SIX CORD,

On 1oz. SPOOLS for EXTRA LEATHER WORK.

Far stronger than Silk, and much cheaper.

THREE CORD SEWING MACHINE THREADS,

On 2oz. SPOOLS.

Also all Numbers one Price, at One Penny, Threepence, and Sixpence per SPOOL.
Strongest Quality made.

To be had at all Wholesale Warehouses.



London, 1862.

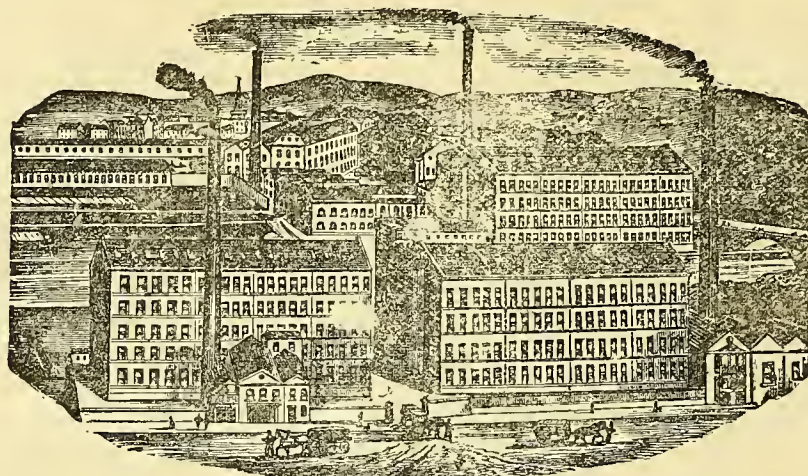


London, 1862.

London Warehouse:—12, BREAD STREET, LONDON, E.C.
Manchester do. 28, MOSLEY STREET.

AGENCIES—Northampton, 44, Horse Market; Stafford, Rowley Street; Glasgow, 48, Queen Street; Dublin, 10, St. Andrew's Street; Belfast, 9, Donegall Square, West; Paris, Rue Thevenot, 25; Hamburg, Gr. Reichenstrasse, 31; Madrid, Turco, 8 Pral.

Samples and Price List may be had on application.



JOHNSTONE FLAX MILLS.

INDEPENDENT TESTIMONY.

FINLAYSON'S THREAD,

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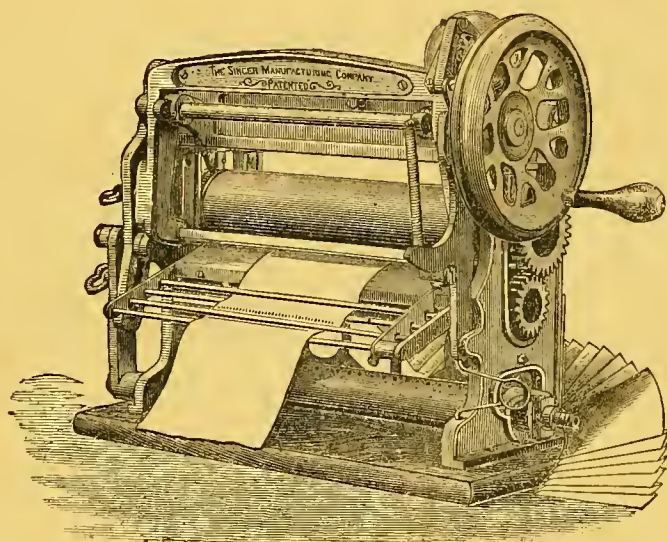
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FINLAYSON, BOUSFIELD & CO.,
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SUPPLEMENT TO THE
JOURNAL OF DOMESTIC APPLIANCES & SEWING MACHINE GAZETTE

AUGUST 1st, 1883.



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Vol. XI., No. 158.

SEPTEMBER 1, 1883.

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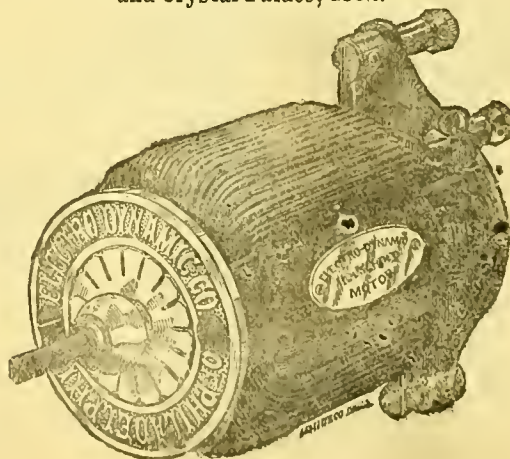
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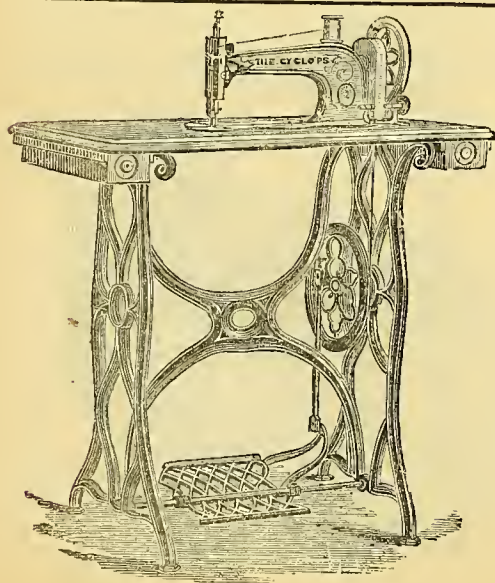
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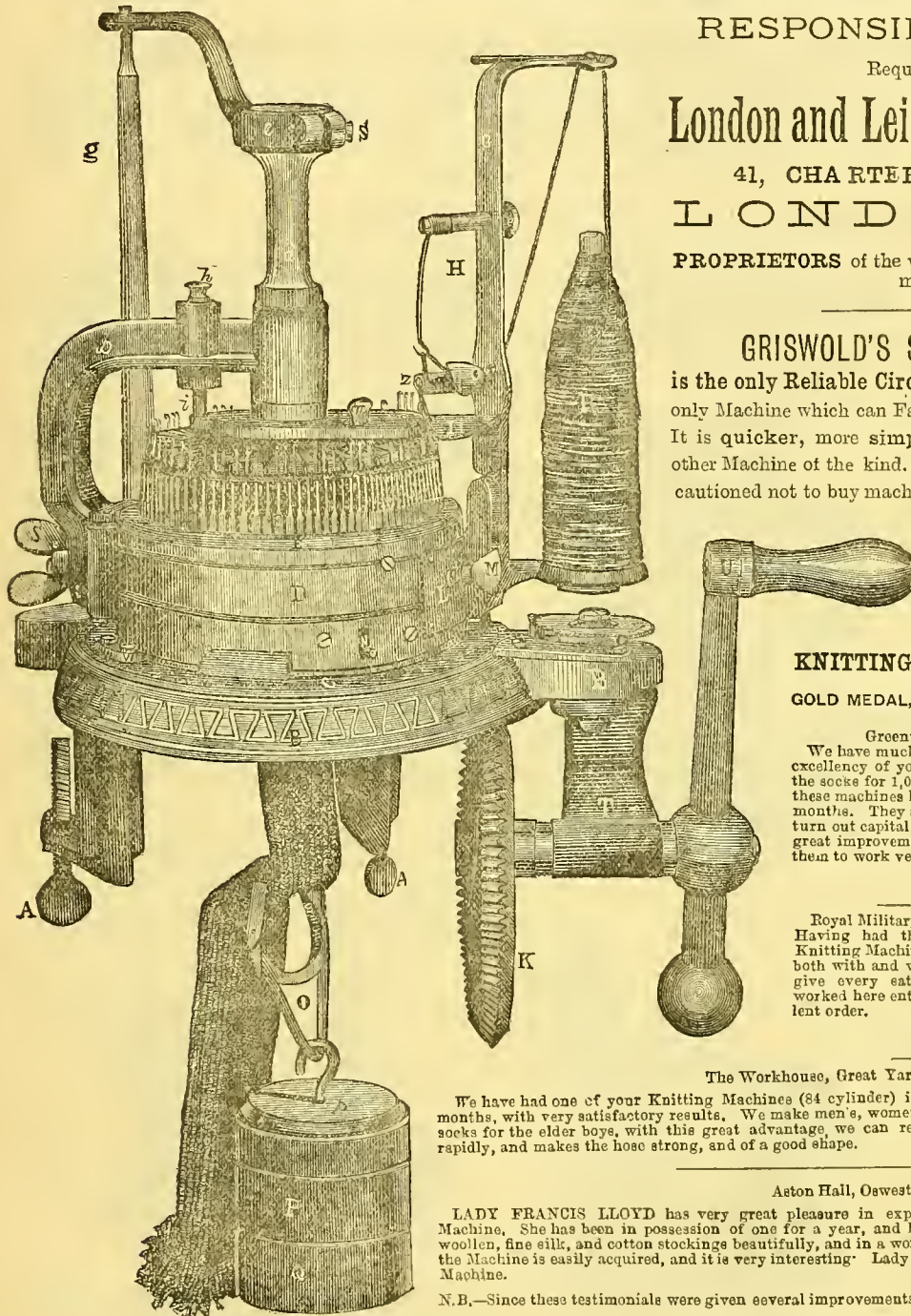
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Greenwich Hospital Schools, Jan. 11th, 1881.

We have much pleasure in bearing testimony to the excellency of your Knitting Machines. The whole of the socks for 1,000 boys are knitted at the School and these machines have been in constant use for eighteen months. They are easily understood by the boys, and turn out capital socks. The Ribbing Attachment is a great improvement to the machine. We have found them to work very satisfactorily.

(Signed) E. M. ROE.
CHAS. BURNE T.

Royal Military Asylum, Chelsea, London, Jan. 7, 1881
Having had three years experience with your sock Knitting Machines, I cannot speak too highly of them both with and without the Ribbing Attachment. They give every satisfaction, and, considering they are worked here entirely by boys, they keep in most excellent order.

(Signed) W. MACDONNELL,
Quartermaster.

The Workhouse, Great Yarmouth, January 8th, 1881.

We have had one of your Knitting Machines (84 cylinder) in use in our workroom about twelve months, with very satisfactory results. We make men's, women's, and girls' cotton ribbed Hose, also socks for the elder boys, with this great advantage we can re-foot them when necessary. It work rapidly, and makes the hose strong, and of a good shape.

(Signed) E. S. BLYTH, Matron.

Aston Hall, Oswestry, January 7th, 1881.

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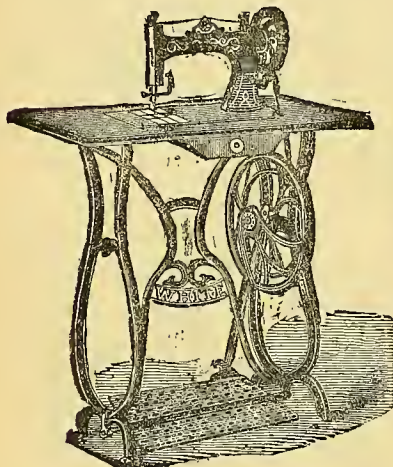
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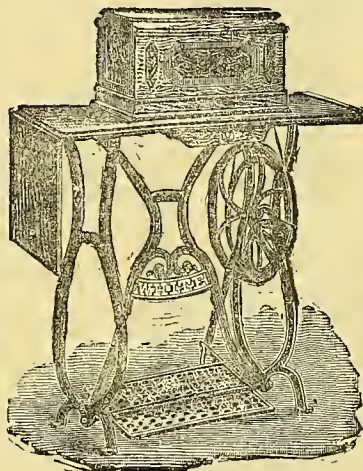
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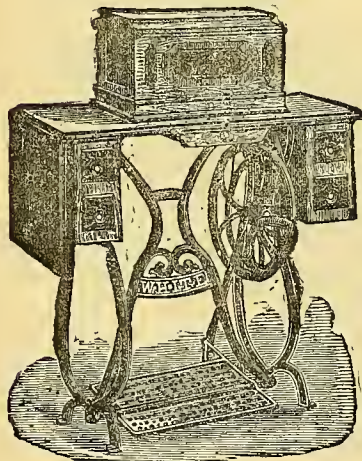
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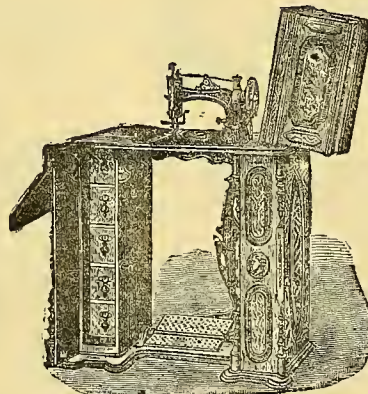
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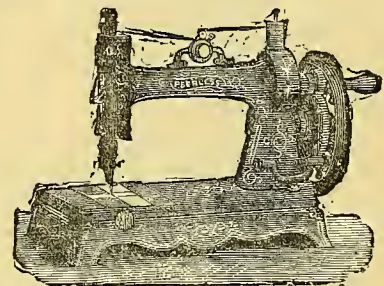
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Our PHŒNIX machines are provided with a loose wheel for bobbin winding, the bobbin is very large and capable of holding more thread than any other family machine. The machines are absolutely noiseless and light running.

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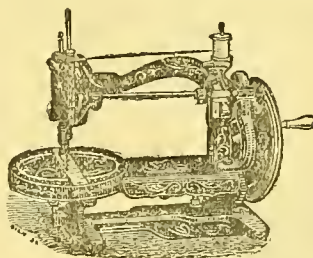


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THIS Machine has obtained the highest reputation and an enormous sale, both under its true name ("Raymond's"), and also as the "Weir 55s. Machine," &c. — (See caution below). It is durable, rapid, exceedingly simple, neat, not liable to get out of order, and warranted to sew from the finest muslin to the heaviest material.

CAUTION.—JAMES G. WEIR, who, for about eight years obtained these genuine Machines, is no longer supplied with them by the Inventor and Manufacturer, Mr. CHARLES RAYMOND.

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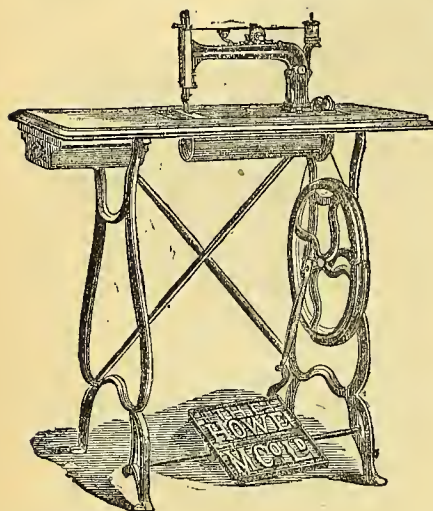
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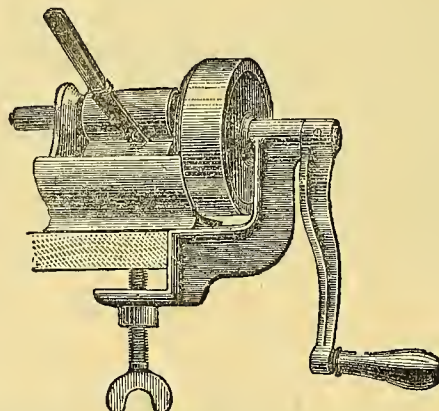
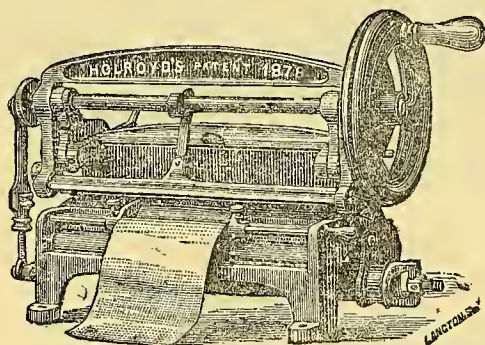
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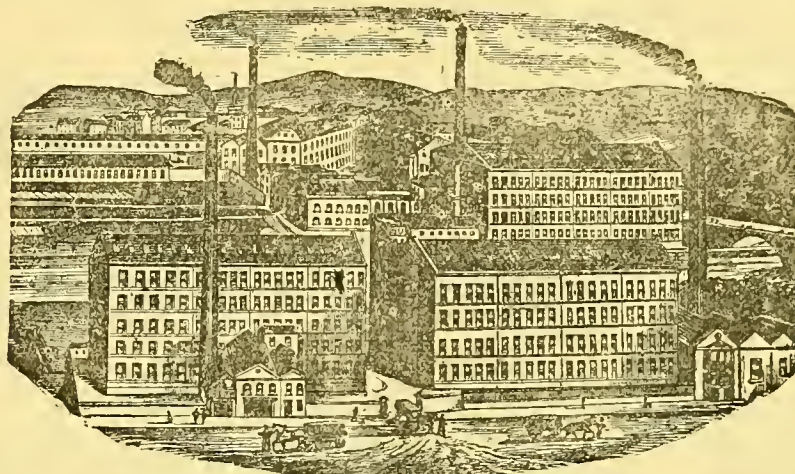


The continued demand for the "Holroyd" Kilter is a satisfactory proof of its usefulness and popularity.

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Every SINGER'S MACHINE

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THIS TRADE MARK

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near the

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TO AVOID DECEPTION,

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AND SEE ALSO THAT THE COMPANY'S

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SEWING MACHINES IN SACK MAKING.

WHEREVER the needle comes into play there that great economiser of time and labour, the sewing machine, makes its appearance. Not only has it become an indispensable article in the household, but it has made its way into the mill, the factory and the warehouse. Articles of manufacturing produce, which previously were the result of severe hand-labour, are now accomplished by means of the all-potent and universal sewing machine, and produced with such rapidity as to meet any demand, however great, and at such a reduced price as to bring them within the reach of most, if not all. And in the revolution achieved by this magic machine the labourer, the operative, whether man or woman, has not suffered. Human strength is not so severely taxed, and wages have improved rather than decreased, while fresh avenues of trade have been opened up by it. The prejudice which opposed its first introduction—as prejudice opposes everything made for the improvement of mankind—has now died out. Foolish indeed would that manufacturer be who barred its entrance to his mill; in the race for wealth he would speedily find himself behind those who started with him. It must be said, however, that masters have ever been too keenly alive to their own interests to let a mere prejudice stand in their way; by every means human invention placed within their reach have they availed themselves, to further their own ends. It has ever been the workman who has objected to the introduction of machinery, viewing it as a kind of Frankenstein, which was to devour or crush him; regarding it with too contracted a vision to see that in its development he himself would be the ultimate gainer—hence organised and infuriated mobs have made crusades against machinery, as mad and senseless as any of the crusades of old against the Moslem. A more enlightened age has almost entirely cleared away the fog from before workmen's eyes, and they, as well as masters, are now equally ready to welcome the advent of some time and labour-saving invention.

But what a blessing to both women and children, who are obliged to work for their daily bread, has the introduction of the sewing machine been! Now, with less labour and less expenditure of strength, they can earn more than when fingers alone plied the needle. And this is never so apparent as in those trades and industries which previously were accomplished by the aid of the needle and the fingers. For instance, sack-making is principally done by girls, and without the help of the sewing machine is painfully heavy work, as hard and laborious as it can well be, but with its aid the ease with which it is done is something marvellous.

The sacks subject to the handling of the early workers (girls) have a second, and more distinctive title, gunny bags. Under whichever name they have an identity of purpose. They cover up and hold together sugar, gums, cotton, oil-seeds, cinnamon, pepper, dye-stuffs, manures, guano, rice; also oats, wheat and other home-grown grains. Before all, it is right it should be made known that they are not the sacks of the sort that carry coal. A sooty alien is that sack, of far superior strength and solidity, constructed to bear much greater inequality of strain, produced with much stricter workmanship, at a much higher cost. In short, it must be discarded from consideration altogether, and when this is done, and the mind allowed to be deposited solely on the gunny bags, all will be well.

An early worker can make one sack in one minute. After all the processes have been gone through to make the

material for the sack, and when the material has been placed in the early worker's hands, that is the extent of the time that perfection of management and the best precision have need to allow her. And there is nothing stinted, it shall be at once stated, in the size of the sack, to account for this rapid manufacture. It is orthodox—being a yard long about, being half a yard wide when doubled over, ready. The sewing machine, of course, as may be expected, is the secret of this speed. It accounts for the first magic stitch insinuated, it goes the whole length along of the yard and a half or so of stitches that are completed in the sixty seconds. In addition, the sewing machines at work under the managing of early workers at sacks, are tools or implements, worthy of the name: steam-power moves them, they are positively machines, therefore, in the modern engineering sense; and they have a bite or gauge that marks a stitch a good quarter of an inch long, and that carries a thread along with it almost as solid and thick as twine. A whole hall full of machines are worked at the same moment, by the same engine, too, enabling quite a little settlement of early workers to be seen under one roof; each girl on her own territory, with her own apparatus, capable of being disconnected and connected again by a touch of her hand; each girl with her younger girl-helper to hand up and carry off; and with the sacks she is to make in a dwindling pile on one side of her, and the sacks she has finished making, an increasing heap upon the other. Apart from this giant-size and this steam motive power alluded to, these sewing machines are identical in form and in principle with the most dainty and decorated little articles wrought in fine woods and bright metal for a rich lady in a rich boudoir. The material under their harrow, or perforation, must be accurately guided, the line of stitches must be kept even, there must be a careful eye that the thread is not snapped off. When this guiding is done, however, and there has been attentive setting in, and as attentive a watch at the easy getting off, this work of sack making is completed, and it cannot be said that the work is hard. A girl's strength is not over-tried by it; she sits with a good light full upon her; in plenty of space; in fair air; under fairly cheerful conditions. As she is paid, also, for what she does by the piece, if she works extra diligently there is the reward that some of the benefit comes to herself as well as some to her employer; and if she dallies and hangs fire, she is reminded of her dalliance, and reproved for it, by the unpleasant fact that the wages she carries away at the weekly hour of payment amount to very little; and it must be seen that there is no better stimulus than this; no more excellent hint and lesson. It works on such a scale with a girl at sacks, that, with the sack material brought already cut into lengths into her apartment, and with the sack pieces laid already doubled to her hand, she can put them under the needles, and direct them along the right line, never stopping to sever one sack from another, letting one sack pursue its preceding, with only a finger's length of thread as frail division—till sack is on sack in a curious growing coil, and till the girl has finished that one sack in a minute, that has been recorded, making five hundred sacks a day, and she has earned at the week's end as much as fourteen shillings. Now, fourteen shillings a week is a good sum for a girl of not more, possibly, than as many years; also is the payment good to the younger girls still, who are under the machinist and wait upon her, although it may only come to half the superior's money, or a little less.

Thus much the sewing machine accomplishes for an early worker at sack making. It relieves labor of its painfulness, increases the amount of work done, and on pay-days puts a larger sum of money into the hand than would be possible otherwise. The article produced can be sold cheaper, and the market for that particular commodity kept well supplied.

THE NICETIES OF SEWING MACHINE MANUFACTURE.

FROM "Chordal's Letters" which are being published in the *American Machinist*, the leading mechanical publication of New York, we take pleasure in reproducing from the issue of June 16 the following exhaustive and impartial testimony of a master mind in mechanics to the great care, skill, exactness and expense necessary to the manufacture of a sewing machine.

I have always had a great fancy for that style of productive business which could be reduced to a scientific system of regular, uniform, calculated output; and if I am not mistaken, I have in previous letters to you mentioned matters bearing upon this subject, which I had picked up from people of experience.

The word "manufactured" really means hand-made, but in all modern uses of the term it is understood to mean exactly the opposite; that is, power production as distinguished from hand production.

By building a machine we mean constructing it by ordinary constructive processes, such as would naturally be employed upon that class of product when occasion required it, and by manufacturing in this connection is meant a system of production by peculiar facilities designed expressly for a given production.

This subject of manufacture, in the machine line, cannot be justly illustrated without going back into Yankee-land, where I may almost say the art itself has its origin.

The sewing machine, while a very complex affair, is probably as simple and popular an example as can be chosen to illustrate the two methods of production. Assume that a man desires to have a sewing machine made. By this I mean one sewing machine. He gets his castings and naturally takes them to a machine shop, where there are skilful workmen. By skilful I mean men who are capable of putting a mark in the right place and of working close to the mark.

The sewing machine has a shaft in it. It is cut off in the blacksmith's shop, centered in the vice, tested and straightened in the lathe, turned to fit the holes it has to go in, and tried in the holes to see if it does fit. A piece with six holes in it has the holes located by a skilful workman. One of the holes is drilled in the drilling machine. The next hole is of a different size, and the drill is changed for one of a proper size, and so on till the six are done. It is secured in the vice and has some holes tapped. Some piece to match, say, two of these holes, is laid against it, and some scribing done, and the drilling is done by the scribing marks. Sliding pieces are nicely planed, and finally filed, to a proper contact with each other. If two parts fit each other too tightly, a little is taken off of one part. Finally the machine is done, and we may say, perfectly done. The cost may readily be imagined. The facilities involved have been lathes, planers, drills, vices, files, and the closest kind of skill at every point.

No fault can be found with this machine by reason of

the manner in which it was constructed. That art which we call manufacture would not have been applicable to one machine, nor would it to two machines. That particular point at which this art itself became applicable is a point for fine determination.

Assuming that, after this machine is built, it is decided to build another machine, the same processes as with the first machine are repeated. The quality should be precisely the same. The cost should hardly vary at all. Another machine has simply been built.

Assume that the third machine is wanted. The same processes are used. The quality would be the same. At least, there seems to be no good reason why it should not be, because the first one was supposed to be as perfect as desired; but the cost will be slightly lessened, for one reason only, and that is the slight increase in the practised dexterity of the workmen. But, still, it is questionable whether the decrease in the course due to this fact would be appreciable in building the third machine, or the fourth machine, or the fifty-fourth machine, or the thousand and fourth machine, provided, of course, that they were built one at a time, without any association with each other. The tools get no better (or there is no reason why they should) and the iron gets no softer (at least, there is no reason why it should), and the only thing in favour of economy is this one feature of added practice.

It might be said that, long before the thousand and fourth machine was built, a successful builder would have put in something like a gang-drill, which would drill three or four holes without having to change the drill, or a centering machine, to save punching the shaft in the vice, or some sort of a dog attached in the face-plate, which would grab this shaft while being turned. But it will be seen that no one of these facilities, which seem to be looked upon as extraordinary, would be justified by the construction of the single machine. These thousand and four constructions are, after all, but the filling of separate orders for one machine each.

Now, notice the process of Yankee manufacture, as applied to this same machine, after the wisdom of a large production is determined upon.

The first step in the process is the construction of what is known as the model. This word, model, hardly strikes me as being proper. I should say sample, but model is the word that is used. The model is simply a machine constructed without regard to how it is done, or who does it, so long as it is exactly like the machine which is in future to be made. The highest possible class of workmanship is involved in the construction of the model. No pains or expense is spared. When it is done, it is tested as a sewing machine, and when found perfect in its operation, the model may be said to be complete.

The manufacturer now looks upon this machine and says: "If this machine is right and the thousand and four built exactly like it, the thousand and four will necessarily be right also." So, the simple question is, how to arrange matters so that the thousand and four machines will be exactly like this model.

He goes into detail. He pulls a little piece out of the machine, and says to himself: "This piece is exactly right for that model. If I make a thousand and four pieces exactly like this, all of them will be exactly right for that model. The problem is to so arrange matters as to make the thousand and four pieces exactly like this little piece."

He looks at a knob on the end of this little piece, and says: "If this knob is all right, all I have to do is to

arrange matters to make the other knobs exactly like this one."

By this system of analysis every piece, and every detail of every piece, is brought under the same head of a mere item to be identically reproduced in numbers.

One thing should be said in regard to the construction of the model. The model must represent something more than a sewing machine. It must be more than a contrivance which will sew and sew properly. Every piece, and every detail of every piece about it, must be of such a character and form that the manufacturer, when he reaches it in his analysis, can say to himself, "It is possible to so arrange matters as to be able to duplicate this thing a thousand and four times with absolute certainty." A detail in the model which justifies the manufacturer in saying, "This thing forbids identical duplication," is a defect in that model fatal to the successful manufacture of that machine.

I have been informed of many sewing machines, and analogous devices, which have possessed peculiar merit for the purpose for which they were intended, but in which the omission of this adaptation of parts to a proper system of manufacture has positively forbidden the investment of capital in an attempt to put them on the market.

Should manufacturing defects appear in the model, a change must be made in that part in which the defect exists. Then the question arises: "Does this change, made for the sake of manufacture, materially affect the qualities of the device as a part of the sewing machine?" These matters must all be definitely settled, and a perfect model—perfect as a sewing machine, and perfect as an article of manufacture—all completed and approved before the real system of manufacture comes into earnest consideration.

In building one of these sewing machines, it is immaterial whether a certain little casting takes ten minutes to be moulded or whether it takes twenty minutes. The difference in cost will be trifling in comparison with the cost of the entire machine; but in this manufacturing scheme the cost of the entire machine must be a trifle, and it is a matter of a great deal of importance whether the aforesaid casting can be moulded in 10 minutes or 9½ minutes.

The question comes up whether the casting can be gated, and whether only two can be gated together or 50. The question of how much it costs to smooth off the gates comes into play, as does also the question of shrinkage, chilling of the castings, warping and capacity to be properly pickled and annealed. All of these things count for much.

Here it will be seen that the man who knows something about manufacturing must have the privilege of dictating the form of machinery to the man who knows something about sewing machines; and if the two cannot agree, the machine can never become a real article of manufacture.

It having been determined that the model represents a machine that will sew properly, and also a machine that can be manufactured properly, the next step is to provide means by which to compare the new work with the model.

A certain piece is taken from the model, and it is necessary that in the new work a certain hole shall always be the exact size of a certain hole in this piece of the model. Before any steps are taken to produce the new hole means must be provided for measuring the new hole. The means is simply a limit gauge. It being determined that all these pieces must not vary more than the half a

thousandth of an inch from the size of the hole in the old piece, a gauge plug is made having one end half a thousandth of an inch larger than the other end. This gauge plug is made regardless of expense. All of the new holes are to be tested by it, or more properly by another gauge plug made from this one, the original being kept as a test gauge plug only.

If the little end of this plug won't go in the hole, the hole is too small. If the big end of this plug will go in the hole, the hole is too big. Gauges of this general character are to be made for every hole, and gauges constructed upon the same general limiting principle of "too big" or "too little" are made for every dimension of every piece about the model.

In the case of a sewing machine, the procedure as thus far referred to will have involved enormous expense. A person who has never seen a set of test gauges used upon such work (to say nothing of a duplicate set of gauges, and perhaps a triplicate set) has no conception of the cost involved. Personally I have had no experience with this class of work, but I will venture to make some figures, qualifying them by stating that they are mere hap-hazard guess work based on an ordinary inspection of the things.

I would say that in an ordinary sewing machine, arranged to be manufactured in the modern manner, the model would represent a mechanical cost of, say, three thousand dollars, and a fine set of triplicate gauges a cost of twelve thousand dollars.

Here we have a good deal of money expended, and still we have nothing that looks really like manufacturing machines. No provision is made to cut a surface, or to drill a hole, or to polish a pin or to bend a wire.

After determining what is to be made, and having provided the means for determining whether the new thing is like the thing determined upon, it is now in order to devise means for the most economical and certain production of the new work. To even hint at this part of the subject would take many of these letters, and as I have spoken of the thing thus far simply to illustrate a point, I will say nothing of the means for actually doing the work.

We often hear fine mechanics in their day-dreams speak of ordinary heavy machinery being manufactured upon this modern plan of duplication. If the subject be considered from this sewing machine operation as a standpoint, it will at once be seen that so long as this world exists we may never expect to find an establishment, engaged in a varied line, carrying out this modern system of operation.

In the sewing machine factory we see two years spent upon the construction of a model; and two years spent upon the elaboration of a set of test gauges; and then a year in planning the shop facilities; and then, say, two hundred thousand dollars invested in marvellous special machines, each of which may be adapted only for a certain peculiar dig into a certain peculiar piece. This fancy shop, when done, will be fitted for making one commercial article only, and the commercial article is a sewing machine like the model.

Now, consider heavy machine construction. I take for example the machine tool concern of Wm. B. Bement and Son, of Philadelphia. This concern builds a full line of iron working machinery. I know nothing exact regarding the matter, but I feel safe in saying that the product of this shop is represented by not less than 300 different machines, selling at from ten dollars to ten thousand, and

weighing from ten pounds to one hundred thousand pounds, and made in quantities of from one to six.

Take as an example among its lot of machines a 30" engine lathe. If the model of this machine were constructed upon the sewing machine plan, it would cost as much as five years' sales of these lathes would come to. A set of sewing machine test gauges for this lathe would cost as much as 25 years' sale of these lathes would come to. The special machines for constructing the parts of this lathe, if the sewing machine idea were carried out, would cost so much that there is no use in figuring it. The shop room taken up by these special machines would terrify a Texan. The interest on the cost of these manufacturing facilities would multiply the natural cost of the lathe by ten, while they may divide the natural cost of the labour by twenty, and a single change in the design of the lathe may knock the whole system endways. And how big a shop would it need be when manufacturing 299 other machines on this same plan?

Tools which years ago were special, being designed for a special product, have, by some slight modifications, become more general in their character. They will do more than take a certain dig in a certain piece of a certain machine. They will take that general character of dig in any piece of any machine. It is the lathe with its capacity decreased in one direction, and increased in another; or the drill press which will not drill many kinds of holes, but it does quickly what it undertakes; it is the milling machine which will not do planing, but will do milling; it is the file, which is not flat on one side and round on the other, and with knife-like edges.

Very respectfully,

CHORDAL.

BRASS AND ITS USES.

BRASS is extensively used in a variety of manufactures. The locksmith constructs many of his locks wholly of brass, and many more partially of that alloy; as for example, in padlocks, locks for cupboards, tills, desks, boxes, &c. He also employs brass in his players, follow-face-plates, striking-plates, handles, roses, and key-shields.

The engineer makes use of brass for journals, for bearings, for plungers, propellers and general fittings. The plumber employs it for pumps, bath fittings, plugs, cranks, &c.

The philosophical instrument maker uses it for nearly every article which he manufactures. Telescopes, microscopes with their stands, camera lenses and fittings, galvanic batteries, and electric machines, ships' compasses and binnacles, may be named as indicating the demand for brass.

The stove and fender maker employs brass to relieve and give effect to his polished work; while the musical instrument maker beats it into trumpets and sounding appliances.

The makers of buttons and pins consume no small quantity for their wares. The maker of gold leaf beats brass into leaf, known as Dutch leaf, which is employed as a substitute for gold in the process of gilding. The glass blower employs it in a calcined state to impart colour to his glass. Blue and green colours are produced from unmixed calcined brass; while a red-yellow or chalcidony is obtained when the brass is calcined with sulphur.

The colour maker adds pulverised brass to several of his compositions, and the shipbuilder employs it largely for

bolts, screws, and sheathing purposes. The cabinet maker adds great quantities of brass manufactures to his work, which includes in his everyday routine, curtain poles, bands and hooks, picture rods, brass locks, hinges, buttons, rings, handles, roller fittings, sash fasteners and lifters, castors, rollers, hat pins and nails.

The bellhanger has nearly all his cranks and pulls made of brass. The gas fitter employs it for his gas lustres, brackets, sunlights, and general fittings and connections. The wire worker is an important consumer of brass wire for making wire cloth (used by paper makers), as well as for fire guards, cages, &c.

The card maker is also a considerable employer of brass wire for the woollen manufacturers' cards. The travellers' bag-maker, boot-maker, and many other manufacturers in the ramifications of industry, employ it in their everyday vocations, and each year adds new applications to this, the most important alloy in the world.

A NEW POTATO STEAMER.

THERE are some people who have gone so far as to assert that if they could only get a well-cooked potato for dinner they would leave *entrées* and expensive "made-up" dishes generally to others. Probably the difficulty of properly cooking potatoes is familiar to most readers. For instance, a common experience is that some tubers will only boil and not steam, while others behave in quite the opposite manner. These and other obstacles, however, have been successfully overcome by the new potato steamer. It consists of two parts—a pot and an inner perforated vessel or lining. The potatoes are first laid in the latter utensil, which is then placed in the bottom of the pot with enough water to cover them. Having boiled for the requisite time (say, a quarter of an hour), the lining is raised and hooked on to a hook near the top of the pan. Here, then, they steam, and in about twelve minutes or so, according to size, will be done to a nicety. It is claimed for this patent steamer that it will cook with certainty and precision every kind of potato that greengrocers provide for their customers.

ZINC-PAINTED IRON.

THE new process of protecting iron from rust by means of a zinc paint is likely to be useful, as it is so easily applied. It is the invention of MM. Nengeau and Delaite, and the paint is prepared by mixing metallic zinc in powder with oil and a siccativ. This paint is applied to the iron by an ordinary paint-brush. Two coats preserve the iron from the atmosphere and sea-water. The paint is steel-grey in appearance, but may be painted over. The paint is cheap and is recommended for fences, telegraph-poles, lamp-posts, and iron structures in general. A very good mixture of ingredients for the paint is 8 parts, by weight, of zinc, 71 of oil, and 2 of a siccativ. The paint is useful where galvanising, the Bower-Barff oxidising process, and others would be impracticable.

"GRANDMA, do you know why I can see up in the sky so far?" asked Charlie, a little four-year-old, of the venerable lady who sat beside him knitting. "No, my dear; why is it?" said grandmamma, bending her head, eager to catch and remember the wise saying of the precious little pet. "Because there is nothing in the way," replied the young philosopher.

THE PARCELS POST REGULATIONS.

IN order that a packet may go by Parcels Post, it must be tendered for transmission as a parcel, and should bear the words "Parcels Post," which should be clearly written in the left hand top corner.

Conditions and Regulations.—The following are the principle :

The size allowed for an inland postal parcel will be—

Greatest length	3ft. 6in.
Greatest length and girth combined	6ft. 0in.

For example :

A parcel measuring 3ft. 6in. in its longest dimensions may measure as much as 2ft. 6in. in girth, *i.e.*, round its thickest part ; or a shorter parcel may be thicker ; thus, if it measured no more than 3ft. in length, it may measure as much as 3ft. in girth, *i.e.*, round its thickest part.

The most convenient mode of measuring will be by means of a tape 6ft. long, having the length of 3ft. 6in. marked thereon. So much of the tape as is not used in measuring the length will be the measure of the maximum girth permissible.

The rates of postage will be—for a parcel :—

Not exceeding 1lb. in weight	3d.
Exceeding 1lb. and not exceeding 3lb.	6d.
" 3lb. " " 5lb.	9d.
" 5lb. " " 7lb.	1s. 0d.

No parcel will be accepted which weighs more than 7lb., or is not sufficiently paid. The postage must, in all cases, be paid in advance, and by ordinary postage stamps, which must be affixed by the sender before tendering a parcel for transmission by Parcels Post at a post office.

Posting of Parcels.—Parcels must not be posted in a letter box, but must be taken into a post office and handed over the counter. Care must be taken that every parcel bears a clear address. If a parcel be posted in a letter box it will not be forwarded by Parcels Post, but will be treated as a letter, or as a book packet if it can pass under book post regulations. The address of a parcel must be clearly written either on the outer wrapper or on a separate address label securely fastened to the parcel ; and the necessary stamp or stamps, to pre-pay the postage, must in all cases be placed (as in the case of letters) close above the address.

It is not intended to apply to postal parcels the practice which obtains of adding to the address, in the cases of letters for the Metropolitan District, the Postal District Initials, and such initials should not be used in addressing a parcel to London or the Suburbs.

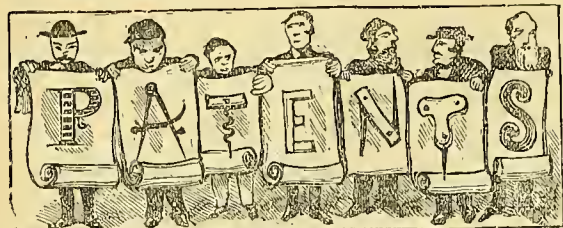
The public will greatly assist the work of the Post Office, and help towards the safe delivery of parcels, by taking care that they are in all cases strongly and securely packed, especially those with fragile or perishable contents. It must be borne in mind, although of course every care will be taken by the officers, that such a parcel must be several times handled before it reaches its destination, and will probably have to be packed with many others of a different kind and shape, or more weighty and bulky.

Forbidden Articles.—Parcels which bear on the outside any writing or drawing of an indecent or offensive nature, or within which any contents of a like nature may be observed, and parcels containing gunpowder, cartridges, lucifer matches, or anything explosive or liable to sudden combustion, bladders containing liquid, live animals, grossly offensive or filthy matter, and anything in a condition likely to injure other parcels, or any officer of the

post office, are prohibited. If any parcel be tendered for posting, it will be refused, or, if detected in transit, it will be detained. Parcels known to contain a letter, packet, or parcel intended for delivery at an address other than that borne on the parcel itself, are prohibited.

Perishable and Dangerous Articles.—Parcels containing fish, game, meat, eggs, &c., or razors, scissors, needles, knives, forks, or other sharp instruments, will not be accepted unless securely packed so as to guard against risk of injury to other parcels. Liquids, or semi-liquids, such as jellies, pickles, paint, varnish, &c., will not be accepted unless in bottles or cans securely stoppered ; nor powders unless so packed that they cannot escape in transmission. Bottles, or glass in any form, will be accepted only when so packed as to be secure from breakage. If a parcel be tendered in a damaged or insecure condition, or in a condition likely to injure other parcels or any officer of the Post Office, it will be refused. If a parcel in such condition should be observed in transit, it will, if possible, be made secure and sent forward ; but, if it cannot be so secured, it will be detained.

Returned Parcels.—In order to facilitate the return of parcels which cannot be delivered, it is most desirable that the name and address of the sender should appear on the outside of every parcel. If a parcel which cannot be delivered bears on the cover the name and address of the sender, a printed notice will be sent to him by post, informing him that the parcel (if not claimed in the meantime by the addressee) will be given up to him or to any person whom he may direct to call for it, or will be returned to him by post. If the parcel should be called for by the sender or his agent, or if it should be returned to him by post, it will be liable to a charge of one penny for each day or part of a day after the expiration of two clear days following that on which the notice has been sent. If the sender should elect to have the parcel sent back to him by post, he must return the printed notice, with stamps sufficient to cover new postage at the full rate and also to cover any other charges to which the parcel may be liable, including the charge of one penny a day described above. The parcel will then be forwarded to him prepaid by stamps affixed thereon. If no reply be received within six days after the date of the notice, or if the postmaster should have reason to believe that application is made for the parcel by a person who is neither the sender nor the addressee, nor duly authorised by either, or if the sender fail to pay the charges due on the parcel, the parcel will be sent to the Returned Letter Office. If a parcel which cannot be delivered does not bear on the cover the name and address of the sender, it will be sent to the Returned Letter Office where it will be opened and examined. If upon such examination the name and address of the sender are ascertained, a printed notice such as is described above will be sent to him, and the parcel will be treated in the same manner as a parcel upon the cover of which the name and address of the sender appears. If the name and address of the sender cannot be ascertained from the examination of the parcel, the name of the addressee of such parcel, and the post office at which it was posted will be entered on a list, which will be exhibited in a conspicuous position at the Returned Letter Office of the district for inspection by the public. Personal applications for parcels entered on such list will be entertained for three months from the date of entry, after which the parcels will be finally disposed of.



The following list has been compiled expressly for this Journal, by Mr. G. F. Redfern, Patent Agent, of 4, South Street, Finsbury, London, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 3506. J. W. Post, of New York, United States, for improvements in sewing machines. Dated July 17, 1883.
- „ 3509. R. H. Brandon—a communication from J. Becker, of Boston, Massachusetts, United States, for improvements in embroidering machines. Dated July 17, 1883.
- „ 3513. T. Woolfall, and T. T. Mercer, both of Blackburn, Lancashire, for improvements in or applicable to washing, wringing and mangling machines. Dated July 17, 1883.
- „ 3515. G. Warwick, of Aston-juxta-Birmingham, for improvements in bicycles, tricycles, and other vehicles. Dated July 17, 1883.
- „ 3534. G. de M. Soares, of the Crichton Club, Adelphi, London, for improvements in velocipedes. Dated July 18, 1883.
- „ 3540. W. Ayres, of 305, Kingsland-road, London, Ironfounder, for improvements in the manufacture of sash weights and other articles. Dated July 18, 1883.
- „ 3549. J. Heselwood, of Leeds, Belt Manufacturer, for improvements in washing machines. Dated July 19, 1883.
- „ 3551. J. H. Johnson—a communication from Messieurs J. Thurnauer and Company, of Paris, Merchants, for improvements in or additions to pocket knives. Dated July 19, 1883.
- „ 3552. J. T. Shaw, of Manchester, for improvements in or applicable to the folding hoods of double perambulators or bassinets and other similar vehicles. Dated July 19, 1883.
- „ 3564. J. A. Griffiths, of Liverpool, for improvements in or applicable to tricycles and other velocipedes, and in part to other purposes. Dated July 20, 1883.
- „ 3577. C. F. Bally, of Schönenwerd, Switzerland, for an improved mode of producing embroidery. Dated July 20, 1883.
- „ 3583. M. Steel and T. Smales, both of Gosforth, Northumberland, Plumbers and Gasfitters, for improvements in apparatus for heating water or atmospheric air. Dated July 21, 1883.
- „ 3592. H. Marlow, of the firm of Marlow, Smith and Company, of 127, Regent-street, London, Lighting, Heating, Ventilating and Sanitary Engineers, for an improved construction of gas distributor in plastic material for domestic and like stoves. Dated July 21, 1883.
- „ 3596. J. A. Farquhar—a communication from H. P. Roberts, of James Town, New York, United States, for improvements in fans or fanning apparatus to be attached to chairs and seats. Dated July 21, 1883.
- „ 3607. G. W. von Nawrocki—a communication from A. Coppel, of Solingen, Germany, for improvements in pocket knives. Dated July 23, 1883.
- „ 3611. G. W. Von Nawrocki—a communication from the Werkzeug und Maschinenfabrik Oerlikon, of Oerlikon, near Zürich, Switzerland, for improve-

- ments in or connected with locks. Dated July 23, 1883.
- No. 3628. M. D. Rucker, of Letchford's-buildings, Bethnal-green, London, and J. Winterschladen, of 138, London-wall, London, for improvements in the construction of velocipedes. Dated July 24, 1883.
- „ 3634. B. J. Mills—a communication from J. Couturier, of 25, Rue de Sèze, Lyons, France, for a new or improved hygienic joint for doors, windows, and other openings. Dated July 24, 1883.
- „ 3647. A. Mehan, of Glasgow, for improvements in the manufacture of ventilator cowls and bends or elbows for gas, water, or air pipes, and other purposes. Dated July 25, 1883.
- „ 3648. F. W. E. Braid, of Chancery-lane, London, for improvements in fire-resisting doors or shutters. Dated July 25, 1883.
- „ 3650. H. C. Webb, of Worcester, Manufacturer, for improved means for attaching door and other knobs and handles to their spindles. Dated July 25, 1883.
- „ 3674. J. Sabatier—a communication from J. Bariquand and Son, of Paris, for improvements in clippers or shears for clipping horses and other animals, applicable also for cutting the human hair. Dated July 27, 1883.
- „ 3681. J. Nadal, of Southampton-row, London, for improvements in sliding chandeliers or gaseliers and pendant lamps, applicable also to other purposes. Dated July 27, 1883.
- „ 3685. W. A. Bonella, of 34, Kingsland-road, London, for improvements in fastenings for securing folding book-case and other doors and gates. Dated July 27, 1883.
- „ 3719. S. W. Richards and J. A. Richards, both of Birmingham, for improvements in the manufacture or production of screw hooks, screw pegs, screw rings, and plate rings. Dated July 30, 1883.
- „ 3728. J. S. Muir, of Highgate-road, London, for improvements in burners and in apparatus connected therewith. Dated July 31, 1883.
- „ 3742. A. S. Bower, Engineer, of St. Neot's, Huntingdonshire, and T. Thorp, of Whitefield, Lancashire, Architect, for an improved regenerative gas lighting apparatus. Dated July 31, 1883.
- „ 3745. H. de M. Wellborne, of 4, Mecklenburgh-street, Mecklenburgh-square, London, and of St. John's College, Oxford, Gentleman, for a combined pot, urn, or other vessel for holding tea, coffee, cocoa, chocolate, or other liquid whatsoever. Dated July 31, 1883.
- „ 3747. W. R. Lake—a communication from W. J. McTighe, of Pittsburg, Pennsylvania, United States, Clerk, for an improved nut-lock. Dated July 31, 1883.
- „ 3755. J. Webb and T. Webb, both of Coventry, for improvements in tricycles. Dated July 31, 1883.
- „ 3761. T. Griffith, of Ivy Lea, High-lane, Chorlton-cum-Hardy, Manchester, Manager, for improvements in stair pads. Dated August 1, 1883.
- „ 3776. R. Wallwork, of the firm of H. Wallwork and Company, of Manchester, Ironfounders and Engineers, for improvements in arrangements and mechanism for grinding, glazing, and polishing articles of metal. Dated August 2, 1883.
- „ 3778. F. U. Bolton, of Birmingham, Die Sinker, for improvements in gongs or bells for bicycles, tricycles, and similar machines. Dated August 2, 1883.
- „ 3781. T. Clarke, of Sheffield, for improvements in razors and razor sheaths. Dated August 2, 1883.

- No. 3789. E. Edwards—a communication from E. Paape and J. Paape, both of Anglenr, Belgium, for improvements in apparatus for washing clothes or other articles. Dated August 2, 1883.
- „ 3792. A. C. Henderson—a communication from L. Olivier, Mechanical Engineer, of Paris, for an improved egg decapitator with rotating blade. Dated August 3, 1883.
- „ 3796. W. A. Brabner, trading as T. Brown and Son, of Manchester, Church Furnishers, for improvements in embroidering frames, also applicable to curtain stretching apparatus and frames for other analogous purposes. Dated August 3, 1883.
- „ 3805. J. B. Petter, of Yeovil, Somersetshire, for improvements in ovens and doors of same of cooking ranges. Dated August 3, 1883.
- „ 3825. H. J. Lawson, of Coventry, Engineer, for improvements in the construction of velocipedes. Dated August 4, 1883.
- „ 3833. A. C. Henderson—a communication from G. Rothgiesser, of Bielefeld, Prussia, for improvements in bicycles, and in certain appliances connected therewith, some of which are also applicable to tricycles. Dated August 7, 1883.
- „ 3872. J. McCoig, of 48, Foley-street, Great Portland-street, London, Gentleman, for improvements in tricycles. Dated August 9, 1883.
- „ 3875. R. H. Brandon—a communication from H. S. Ward, of the United States, for improvements in the process of manufacturing sewing needles, and in the machinery employed for that purpose. Dated August 9, 1883.
- „ 3885. J. Bradbury, of Braintree, Essex, for improvements in bearings, specially adapted for velocipedes. Dated August 10, 1883.
- „ 3903. T. Green, of Smithfield Iron Works, Leeds, Engineer, and J. Hargrave, of Burley, near Leeds, for improvements in machines for cutting the edges of lawns. Dated August 11, 1883.
- „ 3918. J. H. Ross, of 83, Manor-street, Dublin, Ireland, for improvements in locks for securing travelling and other bags, portmanteaus, and the like. Dated August 13, 1883.
- No. 550. C. Mohr, of Birmingham, Manufacturer, for a new or improved spring hasp or clip, for securing the lids of trunks, boxes, and the like. Dated February 1, 1883.
- „ 599. S. S. Hellyer, of the firm of Dent and Hellyer, Newcastle-street, Strand, London, Engineer, for improvements in water-closets and slop-sinks, and in fittings for the same. Dated February 3, 1883.
- „ 610. F. A. L. de Gruyter, of Amsterdam, Holland, for improvements in apparatus for lighting by gas. Dated February 5, 1883.
- „ 619. G. W. von Nawrocki—a communication from O. A. Ludewig, of Stettin, Germany, for improvements in hinges for doors and the like. Dated February 5, 1883.
- „ 679. L. T. Wright, of Beckton, Essex, for improvements in safety lamps. Dated February 7, 1883.
- „ 705. W. Russell, of the firm of W. and A. C. Russell and Co., of Scotia, Foundry, Pendleton, near Manchester, for improvements in or applicable to kitchen and cooking ranges and stoves. Dated February 9, 1883.
- „ 712. G. Ermen, of Holcombe, Dawlish, Devonshire, Esquire, for improvements in and applicable to fire-places, stoves or grates. Dated February 9, 1883.
- „ 714. S. Deards, of Harlow, Essex, for improvements in the means or apparatus for warming houses. Dated February 9, 1883.
- „ 725. T. E. Bladon, of Birmingham, Lamp Manufacturer, and Tin-plate Worker, for improvements in lamps for bicycles and other velocipedes, which improvements are in part applicable to carriage and other lamps. Dated February 9, 1883.
- „ 728. W. R. Lake—a communication from T. Carlsson, of Eskilstuna, Sweden, for improvements in the manufacture of hand rakes. Dated February 9, 1883.
- „ 744. T. Suffield, of 150, Leadenhall-street, London, Hydraulic and Sanitary Engineer, for improvements connected with hydrants, used for water, gas, and other liquids and fluids. Dated February 10, 1883.
- „ 780. C. F. Bower, of 43, College-street, Liverpool-road, London, Gentleman, for an improved potato steamer. Dated February 13, 1883.
- „ 798. W. B. Shorland, of Barton-on-Irwell and Manchester, for improvements in or applicable to latches, and in securing knobs or handles to the spindles of locks and latches. Dated February 14, 1883.
- „ 801. F. J. Drewry—a communication from O. R. van Vechten, of New York, United States, Machinist, for improvements in sewing machines. Dated February 14, 1883.
- „ 812. H. Thompson, of Marquess-road, Canonbury, London, Builder, for improvements in the construction of domestic stoves and grates. Dated February 14, 1883.
- „ 814. J. Kaye, of High Holborn, London, Lock Maker, for improvements in locks and latches. Dated February 14, 1883.
- „ 863. A. W. Pocock, of 15, Spencer-road, Wandsworth, London, Engineer, for improved construction or arrangement of mortice locks, and in the method of fitting them in position. Dated February 16, 1883.
- „ 865. W. D. Player, of the firm of Player Brothers, of Birmingham, Manufacturers, for improvements in the manufacture of metallic dowels. Dated February 16, 1883.

Letters Patent have been issued for the following:—

- No. 142. W. Walker, of Dunstable, Bedfordshire, Foreman to Matthew Walker, of Dunstable, Straw Manufacturer, for improvements in sewing machines. Dated January 10, 1883.
- „ 416. F. Wirth—a communication from G. Speckhart and H. Wiedmann, both of Nürnberg, Germany, for improvements in hammers. Dated January 25, 1883.
- „ 412. A. F. Link—a communication from F. Desplas, of Conques, France, for improvements in apparatus for cooking food and keeping the same warm. Dated January 27, 1883.
- „ 454. E. K. Dutton—a communication from J. Sieper, of Remscheid-Hasten, Rhenish Prussia, Germany, Skate Manufacturer, for improvements in skates. Dated January 30, 1883.
- „ 511. L. W. Leeds, of Old Jewry, London, Heating and Ventilating Engineer, for improvements in and connected with the manufacture of radiators for heating purposes. Dated January 30, 1883.
- „ 527. H. J. Haddan—a communication from E. Capitaine, of Berlin, Germany, for improvements in shuttles for sewing machines. Dated January 31, 1883.

- No. 889. T. Fletcher, of Warrington, Lancashire, for improvements in and applicable to cooking stoves or ranges for gas and solid fuels. Dated February 17, 1883.
- „ 895. S. Barrett, of Keighley, Yorkshire, Shirt Manufacturer, for improvements in apparatus for starching collars and other materials. Dated February 19, 1883.
- „ 900. W. Carrington, of Openshaw, near Manchester, Engineer, and W. H. Bowers, of Gorton, near Manchester, Manufacturing Chemist, for an improved water heater used in connection with circulating hot water pipes for warming greenhouses and all descriptions of buildings and places to which it can be usefully applied. Dated February 19, 1883.
- „ 905. J. Dunbar, of Coalbrookdale, Shropshire, Foreman Fitter, for improvements in fire grates. Dated February 19, 1883.
- „ 917. D. M. Ford, of Bristol, for an improved bread loaf cutter. Dated February 20, 1883.
- „ 950. F. J. Drewry—a communication from G. A. Leighton, and S. C. Forsaith, both of Manchester, New Hampshire, United States, for improvements in knitting machines. Dated February 21, 1883.
- „ 983. F. Johnson, of Nottingham, for improvements in knitting machinery. Dated February 23, 1883.
- „ 1008. J. A. Lamplugh, of the firm of Lamplugh and Brown, of Birmingham, Manufacturers, for improvements in saddles, which improvements are principally applicable to the saddles of bicycles, tricycles, and other velocipedes and vehicles, but are also in part applicable to saddles for horses and other animals. Dated February 24, 1883.
- „ 1024. A. M. Clark—a communication from Mrs. Ida Reed Opdyke, of Plainfield, New Jersey, United States, for improvements in cribs for children. Dated February 24, 1883.
- „ 1131. J. B. Adams and J. Telford, both of Liverpool, for improvements in the means of and apparatus for balancing, securing, and fastening sliding window-sashes. Dated March 2, 1883.
- „ 1282. G. E. Mineard, of Kensington, London, and T. Crapper, of Chelsea, London, for improved means for ventilating house drains and for warming houses. Dated March 10, 1883.
- „ 1502. W. P. Buchan, of Glasgow, Sanitary Engineer, for improvements in ventilating and in appliances therefor. Dated March 22, 1883.
- „ 1604. W. A. G. Schonheyder, of 81, St. Stephen's-avenue, Shepherd's Bush, London, for improvements in apparatus for heating and cooling fluids. Dated March 30, 1883.
- „ 1686. A. Mehan, of Glasgow, for improvements in ships' and other ventilators. Dated April 4, 1883.
- „ 1839. R. H. Rowland, and T. F. Stidolph, both of Woodbridge, Suffolk, Manufacturers, for an apparatus for removing the ends of eggs. Dated April 11, 1883.
- „ 2201. J. Higham, of Newton Heath, near Manchester, for improvements in knitting machines. Dated May 1, 1883.
- „ 2598. H. W. Atwater, of Orange, New Jersey, United States, for improvements in wrenches. Dated May 24, 1883.

PATENTS WHICH HAVE BECOME VOID :—

- No. 2829. H. E. Newton—a communication from A. R. Villain, of Paris, for improved apparatus for finishing sewing thread and twine. Dated July 9, 1880.

- No. 2857. J. Lloyd, of Birmingham, Perambulator Manufacturer, for certain improvements in perambulators. Dated July 10, 1880.
- „ 2859. F. H. F. Engel—a communication from E. Murjahn, of Hamburg, Germany, for improvements in sewing machines. Dated July 10, 1880.
- „ 2861. A. M. Clark—a communication from L. W. Murch, Cabinet-maker, and L. C. Colburn, Farmer, both of Kennedy, New York, United States, for improvements in rotary churns. Dated July 10, 1880.
- „ 2873. W. P. Thompson—a communication from P. P. Mast, of Springfield, Ohio, United States, for improvements in lawn-mowing machines. Dated July 12, 1880.
- „ 2900. T. Fletcher, of Hyde, Cheshire, for improvements in sewing machines. Dated July 14, 1880.
- „ 2934. T. Rochford, of Brunswick-square, London, and of Water-street, Liverpool, for improvements in and relating to safety guards for window-cleaning and like purposes. Dated July 16, 1880.
- „ 2944. W. E. Partridge, of Birmingham, for improved apparatus for washing clothes, applicable also as a mixer or agitator in various processes. Dated July 17, 1880.
- „ 2946. D. McGlashan, of Glasgow, for improvements in hem-stitching or veining machines. Dated July 17, 1880.
- „ 2950. W. B. Baker, of Birmingham, Ironfounder, for improvements in corkscrews. Dated July 27, 1880.
- „ 2978. W. R. Lake—a communication from the Boston Water Purifier Company, of Portland, Maine, United States, for improvements in filters. Dated July 19, 1880.
- „ 2979. W. R. Lake—a communication from L. Onderdonk, of Adam's-station, New York, Sewing Machine Agent, and C. C. Brown, Banker, and H. P. Wells, Counsellor-at-Law, both of New York City, United States, for improvements in gathering and plaiting apparatus to be used as an attachment to sewing machines. Dated July 19, 1880.
- „ 3008. W. R. Lake—a communication from J. F. Gommeret, of Troyes, France, for improvements in knitting machines, chiefly designed for the manufacture of hosiery. Dated July 21, 1880.
- „ 3014. R. Challinor and W. H. Mawdsley, both of Bolton, Lancashire, for improvements in the construction of “incubators,” part of which invention is also applicable to the regulation of heat for other purposes. Dated July 22, 1880.
- „ 3021. F. H. F. Engel—a communication from A. S. Biernatzki, trading as Biernatski and Co., of Hamburg, Germany, for improvements in the locks of knitting machines, after Lamb's system. Dated July 22, 1880.
- „ 3109. E. Clements, of Great Russell-street, London, for improvements in wringing machines or hydro-extractors. Dated July 28, 1880.
- „ 3148. C. Cresswell, of Loughborough, Leicestershire, for improvements in knitting machines and apparatus applicable thereto. Dated July 31, 1880.
- „ 3153. T. W. Helliwell, of Brighouse, Yorkshire, Architect, for improvements in water closets, and in flushing apparatus therefor. Dated July 31, 1880.
- „ 3154. J. Hunt, of Bolton, Lancashire, for an improved knife cleaner. Dated July 31, 1880.
- „ 2835. J. P. Smith, of Glasgow, Civil Engineer, for improvements in cutting tool holders. Dated July 12, 1876.
- „ 2853. W. H. Beck, of Cannon-street, London, Consulting Engineer, for improvements in machinery or apparatus for sewing boots and shoes. Dated July 13, 1876.

No. 2854. C. T. Powers, of Sheffield, Machinist, for improvements in mechanism and arrangements for winding thread on to spools or reels, more particularly for use in sewing machine shuttles. Dated July 13, 1876.

SPECIFICATIONS PUBLISHED DURING THE MONTH.

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1882.

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„ 5840.	T. J. Denne, arrangement of sewing machine	0	6
„ 5844.	J. J. Royle, suspended lights from existing gas-fittings, &c.	0	6
„ 5853.	W. R. Pidgeon, velocipedes	0	6
„ 5855.	T. E. Parker, open fire-grates, stoves, &c.	0	2
„ 5858.	E. A. Tice, construction of wheels for velocipedes, &c. ..	0	2
„ 5877.	W. Hatchman, perambulators	0	2
„ 5882.	J. R. Trigwell, velocipedes	0	6
„ 5883.	A. M. Clark, spring motors for sewing machines ..	0	10
„ 5884.	W. H. Beck, combustion moderator or regulator for stoves, &c... ..	0	2
„ 5885.	W. A. G. Schonheyder, apparatus for controlling or regulating the discharge of water and other liquids	0	8
„ 5888.	A. Haigh, safety-valves	0	2
„ 5890.	A. Shelmerdine, doors to exclude draughts, dust and weather	0	2
„ 5891.	A. J. Boulton, pocket knives, &c.	0	6
„ 5892.	J. White, construction of chimney and ventilating cowls, &c... ..	0	2
„ 5903.	T. S. Marriage, cans or vessels for containing oil, &c. ..	0	8
„ 5940.	W. H. Thacker and J. T. Green, tricycles, &c.	0	6
„ 5955.	A. H. Adams, manufacture of cup and screw hooks, screw pegs, screw rings, &c.	0	4
„ 5948.	C. Gnthrie, machinery for manufacturing wedges, &c... ..	0	6
„ 5955.	A. G. Henderson and J. A. Kilman, apparatus for controlling and measuring the supply of heating and illuminating gas	0	4
„ 5960.	C. Brothers, combined ventilating and fire extinguishing apparatus	0	2
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„ 6063.	E. Marshall, tricycles, &c.	0	8
„ 6082.	E. Nunan, hand shears for cutting cloth and other fabrics and thin metals	0	6
„ 6088.	W. Cotton, rotary knitting machines.. ..	1	2

TWO NEW KNIVES.

NOVELTIES may always be looked for from the headquarters of the cutlery trade, and in the two new knives under notice we find very good specimens of Sheffield workmanship. One of them is a knife specially designed for peeling. The end of the blade for about one-third of its length is the knife proper, with which the incisions, &c., are to be made, while the remaining two-thirds of the blade are occupied with an ingenious appliance for peeling purposes. The "Wheatsheaf Peeler"—as it is called—peels so closely and evenly as to effect a considerable saving by the prevention of waste.

The other novelty is a cement-hafted table-knife. This particular kind may be allowed to remain in boiling-water for any length of time without the blade becoming loosened. Nor does the cement itself dissolve, a common source of discolouration being thus avoided. As is well known, the blades of table-knives often get loose, or the handles discoloured, but these evils are successfully prevented by the use of cement for securing, as in the "Wheatsheaf" knives, the blade to the handle.

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A SOFT alloy capable of attaching itself as a solder to metals, glass, and porcelain, and which can be used on objects that will not stand a high temperature, is made by precipitating copper-dust from the sulphate in solution by scrap zinc, and putting this dust, mixed with strong sulphuric acid of specific gravity 1.85, into a cast-iron mortar. To the cake formed of acid and copper is added 70 per cent. of mercury. The acid is rinsed from the mixture by warm water, and in ten or twelve hours the alloy is hard enough to scratch tin. If it be used now the alloy must be heated so hot that when brayed in an iron mortar it becomes soft as wax. In this ductile form it can be spread out on any surface, to which it adheres with great tenacity when it gets cold and hard.

ALUMINIUM-COATED IRON.

IRON is now coated with aluminium by galvano-plasty. The aluminium prevents the iron from rusting and keeps a bright surface, making iron-work look something like silver-plate. Quite recently another process of coating the iron with aluminium, much in the same way as with tin, has been discovered by Dr. Gehring, of Landshut.

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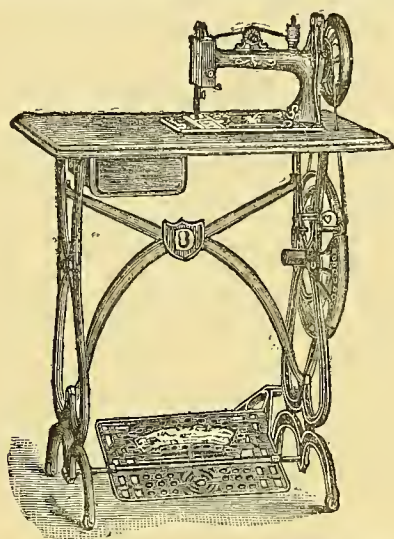
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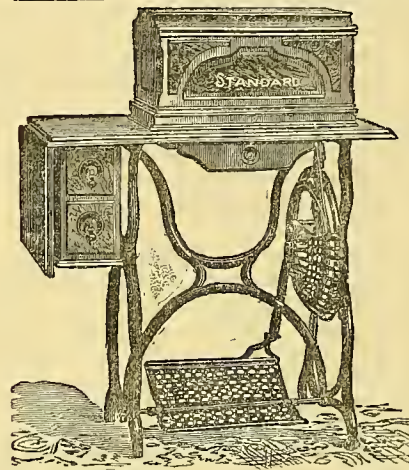


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JOURNAL OF DOMESTIC APPLIANCES

AND

Sewing Machine Gazette.

THE Heberling horizon does not yet look very bright or clear. How the matter may end it is impossible to say, but there is some little chance of it assuming a more favourable prospect—at least, when looked at from a retailer's point of view. As at present placed, that individual is not in an enviable position. If he has sold Heberling sewing machines he is at any moment open to an action, while if he has stock on hand it would be risky to sell it. In our July issue we gave some particulars concerning the actions for infringing the Heberling Patents; and it will be remembered that in the case of Thorpe the action was postponed to wait the arrival of fresh documents from America, but on their reaching this country it was to be resumed without prejudice. We are now informed that the documents necessary to complete the case have arrived, but still the action is delayed. What is the reason? It is this: Several leading firms, about seven or eight, have wisely met together to see whether it would not be better to endeavour to make some arrangement whereby the Patent Rights can be purchased, and retailers protected from any action on account of their past sales. That some such arrangement should be made is "a consummation devoutly to be wished;" for, although it is not likely that the Inventors' and Factors' Alliance will commence actions against every dealer who has sold a pirated Heberling machine, the sense of uncertainty, the knowledge that he may be selected as the one to suffer for the sins of the many, is not by any means a comfortable sensation to the agent. Manufacturers, too, would certainly do well to take these valuable patents into their own hands, provided, of course, they have not to pay the piper too heavily. How things may end, as we have said before, we cannot predict. Just as we go to press there is a meeting upon this subject, so we hope in our next issue to inform our readers of the result of the conference. Meanwhile, we think it within our province to caution the trade as to selling the Heberling machines; better lose a sale than run the risk of getting the rod which the Factors' Alliance may yet have in pickle to bring down on those who continue to offend them.

FIRE is undoubtedly a good servant but a bad master, and it will be seen by a report in another column that it has recently figured in the latter capacity. The Howe Sewing Machine Company's factory in America has been completely destroyed by fire, and no fewer than 500 hands have been thrown out of employment. How the fire originated it is impossible to say; it is believed by some to have been spontaneous combustion. It has happened very unfortunately for the Company, for they were just completing improved machines and their agents have but

small stocks on hand. The majority of the machinery has been burnt or broken so as to be almost useless.

Fortunately the patterns have been saved, and as the Howe Company are an enterprising firm it will certainly not be long ere they are on their feet again.

WE are repeatedly asked by sewing machine dealers for the names of the makers of certain machines that are not too well known. It has occurred to us that it would be of some use to the trade if we were to publish a list of all the machines made, and the addresses of the firms who make them, in our next issue. We shall be glad if all manufacturers who have not already sent us the names of their various machines would do so at once, for we are now preparing this list, and desire to have it as perfect as possible. We had thought of illustrating every machine, but as there is so much similarity between many of them, we have abandoned that idea.

MR. SENAUR has removed from 46, Cannon-street, to Victoria-chambers, Chancery-lane.

MR. THOMAS BROOKS is now travelling for the White Sewing Machine Company.

MESSRS. BAACH AND KLEI, of Brunswick, Manufacturers of the original Elsa machine, have withdrawn their agency from Mr. H. C. Lee, and have appointed Mr. C. Lohmann, 43, London Wall, E.C., sole wholesale agent for the United Kingdom.

SEWING MACHINE LITHOGRAPHIC TRANSFERS.

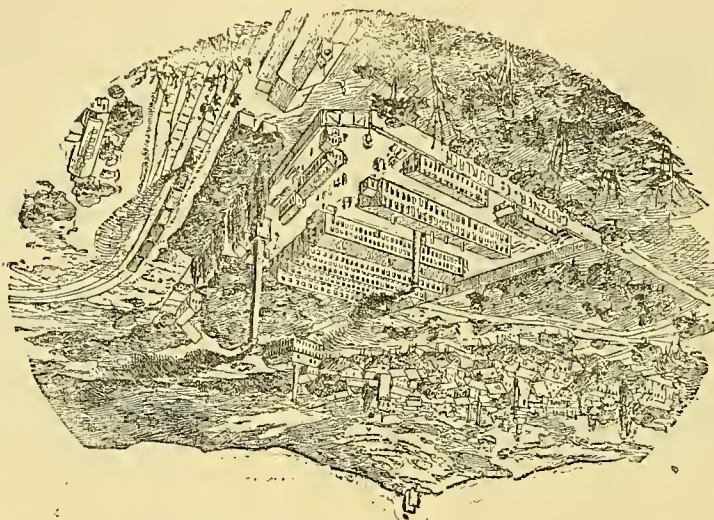
WE have before us some excellent specimens of lithographic transfers made by Mr. Gay, of Holloway Head, Birmingham, whose advertisement will be seen in another column. They are suitable for sewing machines, bicycles and other kinds of domestic machinery. The following is the manner in which they are applied:—With a clean duster remove all dust from the article to be ornamented. When clean, varnish over the parts to be ornamented with as little varnish as possible, using either a flat camel-hair or soft bristle brush to put the varnish on with. Let it stand till the varnish gets to a nice dry sharp taut. Cut your transfer moderately close to the work, then place the transfer upon the varnish in the proper position upon the article, being careful to put it on straight (with the metal or colour side next to the varnish). When in proper position, rub the back of the transfer so as to make it adhere well to the varnish, using a little cloth or flannel with a little soap upon it to prevent the lint adhering to the varnish. When well rubbed, get a clean sponge, wet it, and sponge the paper well. Wring the water out of the sponge, and well press the transfer with it upon the varnish. Rub the paper away, being careful not to scratch the ornament, which will be left upon the article. Well wipe it with a clean damp duster, put into a stove to dry. When the varnish is dry, finish with varnish in the ordinary way,

DOMESTIC APPLIANCES.

A WHOLESALE firm that is now largely dealing in all kinds of domestic appliances is Messrs. **TESTER & Co.**, of Dr. Johnson Passage, Bull Street, Birmingham. It is

to binding hats or sewing leather, and at various exhibitions have taken no less than Ten Prize Medals.

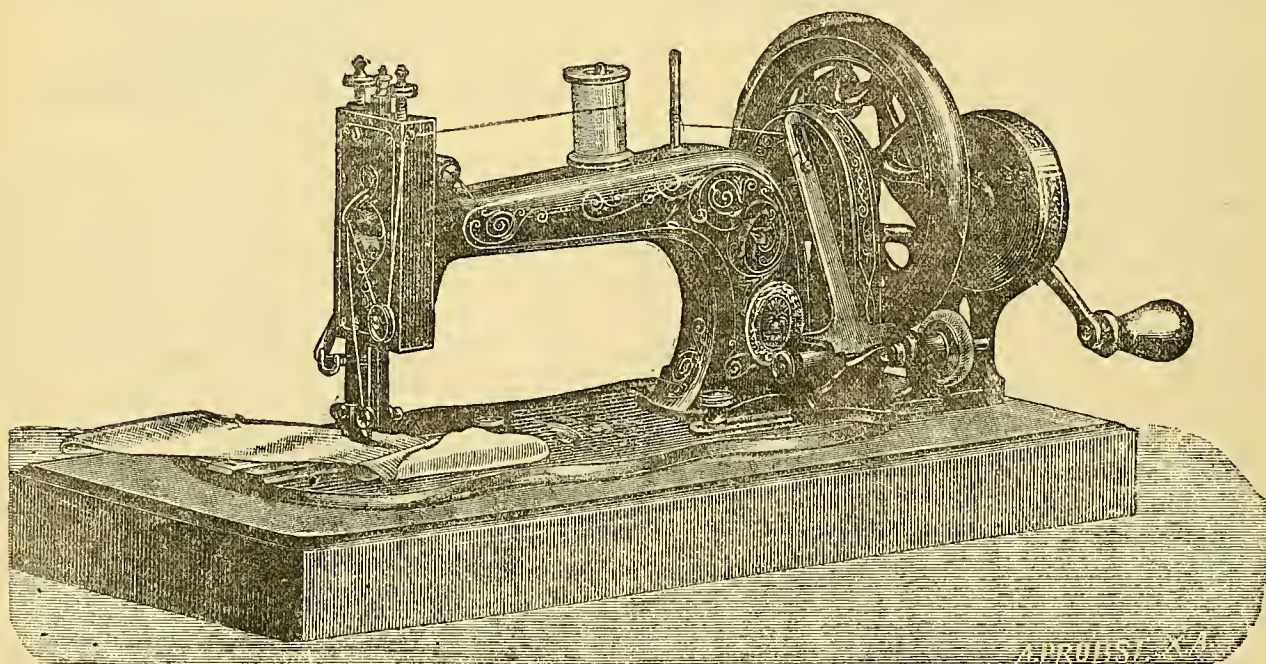
All kinds of perambulators, bicycles, quilting machines, washing and mangling machines, knife-cleaners, and other domestic appliances, can be obtained on favourable whole-



THE GRITZNER FACTORY.

no doubt known to the trade that Messrs. **Tester & Co.** are sole agents for the celebrated Sewing Machines of Messrs.

sale terms of Messrs. **Tester & Co.** We know that this firm also supply Steinmayer's far-famed upright and over-



"THE GRITZNER."

Gritzner & Co., of Durlach, and are now supplying them to retail dealers throughout Great Britain. The Gritzner Machine will do all kinds of work, from quilting fine linen

strung pianos. Agents who are seeking something as an addition to their sewing machine business would do well to entertain the idea of selling these pianos.

TOILERS AT THE SEWING-MACHINE.

THE Crystal Palace was, on the 18th ult., the scene of a very quaint and pretty ceremony, the crowning of the Rose Queen, whose sovereign power over those by whose vote she has been enthroned is to continue for a year. On Ada Huxton, a young work-girl, and a member of the St. Austin's Priory congregation, has been conferred the regal dignity, with flourish of trumpets, floral offerings, and words of wise counsel. To Father Nugée, the South London Missionary, or "the pilot of the Church of England," as he is described, is to be attributed the introduction into this country of a custom dating in France from the sixth century, and revived with vigour and splendour by Louis XIV., the *Grand Monarque*, about whose Court there was much pomp, pageant, and ceremonious observance. Not on a pretentious scale was the crowning of Miss Huxton, yet there was enough about of freshness and simplicity to gladden the heart of the beholder. It was the elevation of a good and hard-working girl into public notice, not for the mere purpose of parade, but that others may be led to follow her example, and that some alleviation may be effected in the condition of a class whose lot is one round of toil seldom relieved by a single bright gleam. It is in behalf of the sewing-machine girls that Father Nugée is working; it is on their account that he has for the last seven or eight years held the annual pageant, this year more publicly than ever. He gave a sorry account of their manner of life to the large numbers of people who were assembled, some attracted by curiosity, most by sympathy. "Hood," he observed, "had written his song of the shirt; had he been alive, he would have written the dirge of the sewing machine." From four o'clock in the morning until night, working with bent chests at the sewing machines, these ceaseless treadmills, hundreds of our healthiest and most promising young women are falling into consumption, and yet are constrained to labour on for pay that is next to no pay, ill-fed, ill-sheltered, and with no hope beyond the hope of work, which is more necessary each day by very reason of its being badly remunerated. Father Nugée wants a Home for these young females, a home of rest, where the weak may be restored to health, lost in the pursuit of daily bread. Ada Huxton, who is about eighteen years of age, assists to support her mother and invalided father, who are dependent on her aid. Modest, uncomplaining, and good, she has the esteem and cordial respect of all who know her; and, duly declared by the congregation as worthy the Crown of Roses, she was, on the evening of Sunday week, in their presence, blessed at the altar by Father Nugée. Yesterday she attended church as the Rose Queen, and excited no little interest. If rumour be correct, she will, at the end of her reign, confer her hand on a wooer who has already asked her in marriage; and it is to be hoped that when united they will live sufficiently happily to entitle them to the Dumfrow fitch of bacon, awarded in former times by a jury of bachelors and maidens to the couple proved to have lived for a year and a day in absolute harmony.

The coronation was performed at the top of the steps leading to the Rosery, a bower of leaf-clad arches. Placed in prominent position was the throne of crimson and gilt, and the sloping and carpeted pathway leading to it was roped off, in order to admit of the free passage of *La Rosière* and her suite. Considerably before the time fixed for the enthronement, the Rosery and the approaches to it were crowded with visitors full of expectancy. Soon after five

o'clock, a fanfare of trumpets announced that the procession had started from the left wing of the palace, and a rush was made in that direction. It was seen not to be a long procession, as it traversed the stately terrace, nor a gorgeous one. But there was something in its aspect very touching. In the children who partly composed it were the evidences of anxious, loving care—cleanliness, the most made of small means, poverty, no doubt, and too much of it, yet decent poverty. In front walked the trumpeters in blue hose and heralds' coats, the only sign of blazonry except the ecclesiastical banners in the entire display. Following them came a choir of youths clad in surplices of white and crimson and white and mauve, and wearing the closely-fitting crown cap of silk. By their side walked Father Nugée and a charitable Sister of the Church, and behind elder members of the congregation and troops of friends. In the centre of the procession Miss Huxton had her position. She was clothed and veiled in white, and was surrounded by her Maids of Honour, who were also dressed in garments of white, and carried baskets of flowers. Coming as they did from the most squalid portions of South London, with only an occasional treat like the present to enliven the dreary round of their existence, the elasticity and cheerfulness of these boys and girls was remarkable. Who knows the shifts to which the careful mother had been put to make her son or daughter presentable; how much scheming and contriving the little piece of ribbon, the new straw hat, the white frock, the cobbled shoes, the refurnished jacket, had cost her? It was good to see these mothers, beaming with maternal pride, as they struggled under the hot August sun to keep nearest their own—toil-worn and haggard, many of them, but so uncomplaining, so patient! To them this was a great day enough, a glimpse of happiness, a brief respite.

There was a further flourish of trumpets as the Rose Queen took her seat on the throne, with her Maids of Honour and the choir boys on either side, so disposed as to present to the view quite an old-world picture—a snatch from monastic days. Father Nugée, stepping to the front, with bared head, made the following proclamation:—"My people, hearken all of you. Ada Huxton has been elected as the Rose Queen for this year. She has passed all the qualifications required for that high office. Her good life, her industry, her religious life, have all qualified her for our choice. I put it openly to our congregation, and there has not been one voice, or one word, or one whisper against her. I, therefore, proclaim her, in presence of you all, as the Rose Queen for this year." The reverend Father then made an earnest and pathetic appeal for aid in the work of providing a home of rest for the overwrought girls of South London. The May season and May flowers, he remarked, seemed to have gone, and we now had no May Queen. But we could have a Rose Queen, and the qualities required of this innocent and harmless sovereign were such as all the girls of London ought and could aspire to, by the grace of God. He hoped that the example set that day would be followed throughout the country, and that the people would have set before them the reward due for a good and industrious life. Turning to the Rose Queen, Father Nugée addressed her in these words:—"Ada Huxton, I place this crown upon your head, and I trust that a worthier and more immortal crown will be given to you one day by Him whom we serve, our God and Lord. I trust that this day may ever leave its mark upon your character, and that you may remember, having been exalted as you have been before the world, to maintain the virtue of exalted life by

chastity, by holiness, by purity, by love of all around you ; and I pray that good influence in time will make your life such that by its love it shall beam on all around you, and that all your friends and relatives will remember the coronation of Ada Huxton." *La Rosière* received the crown with bowed head, and was hidden by a shower of rose leaves thrown by the Maids of Honour. The trumpets sounded, the spectators cheered, and the young maiden was hailed as the Rose Queen. Having been presented with a purse containing gold, to be considered as her dowry, the young sovereign, who had gone through the ordeal calmly, though a little nervous at her conspicuous position, rejoined the procession, which returned in the same order as it left the Palace.

BURNING OF THE HOWE SEWING MACHINE FACTORY IN AMERICA.

A DISASTROUS fire has occurred at the Howe Factory in East Bridgeport. The buildings destroyed were the old original sewing machine shops built by Elias Howe, jun., and occupied three sides of a square. The loss sustained will reach the neighbourhood of \$500,000 upon which there is an insurance of \$270,000.

The fire was first discovered about ten minutes before eight o'clock, by William Thorne, who occupies the West tenement in Howe's block. He was sitting in his kitchen, which is on the second floor, and looking out of the window saw a small light in the varnishing room, which was located on the ground floor in the south-east corner of the factory. He concluded that the watchman was making his rounds and the light came from his lantern, as the flames seen at this time did not appear to be larger than would be shown from a bull's eye lantern. A moment later his wife called his attention to the light and said she thought it must be a fire, and he had better investigate the matter. Thorne ran down stairs and into the street to give the alarm. Here he was joined by a young man named John W. Maylinn, and the two ran down Howe-street to the Company's Office and pounded on the door to attract the attention of one of the watchmen.

The fire, as before stated, started in the varnish-room on the ground floor. Owing to the inflammable material used in this part of the business the flames spread with great rapidity, and in a very short time had broken through to the floors above. Being favoured by the light southeast wind, which seemed to spring up at this time, the fire was soon beyond the control of the firemen, who were working under many disadvantages. The fire had gained such headway before the alarm was sounded that, on the arrival of the firemen, it was almost impossible to stand within working distance of the building. The three floors were now a solid mass of blaze, which was gaining slowly but surely on the large building the firemen were so anxious to save. Soon flames were seen breaking out in the wood room, situated on Kossuth-street, at the south-end of the foundry, and spreading northerly with great rapidity; this portion of the works to the foundry was entirely destroyed, nothing but the walls, which were only one storey high, being left standing.

By this time there were three separate fires, one might say to be attended to—the foundry, the wood-shop and the building containing the japan, ornamenting and needle-room. A brick wall divided the Howe-street building into two portions, but the brave attempts to cut the fire at this point proved of no avail.

The main building fronting on Noble-street was the last to be consumed. The end wall on Kossuth-street, where the fire first started had fallen at nine o'clock, also a portion of that on Howe-street, when the main factory was well under way and there was not a possibility of saving it. It was then evident that the principal portion of the extensive works would be totally destroyed, which proved to be a fact, as nothing but a part of the foundry has escaped.

In two hours from the time the fire first started the large and stately brick buildings which have for so many years occupied the grounds lay a pile of smoking ruins, and fully four hundred hands who were accustomed to toil within their walls from day to day were thrown out of employment.

The Company were fortunate in saving all their books and papers which were in the office. They have five safes in all, and the contents of each are intact. Mr. Robert Ross, one of the contractors, meets with a serious loss in having \$2,000 burned up which he had just locked up in his desk. He made an effort to get at it but was driven away by the intense heat and smoke.

Mr. F. Parmly, secretary, treasurer and manager of the Company, was on the ground early, and was busy in trying to save what property he could with the help at his command. The Company's double team was used in carting the books and office furniture to a place of safety. Mr. Parmly says that had the fire happened two years ago it would not have been one-tenth as bad for all concerned as at the present time. They had just got into shape to do a good and profitable business, and were selling their new machines as fast as they could make them. They were turning out 110 every day. He could not see how the fire started as there was no fire in that part of the building, and no light except that of the lantern carried by the watchman.

The Company had about 400 machines completed and nearly ready for shipment, and succeeding in saving about 150 of them. All of their patterns and drawings were stored in the new building opposite, and were saved. They also have a large stock of the different parts of every machine that they have made, and can quickly supply the trade. They have plenty of shop room which they could occupy, but their tools and machinery being destroyed it will take them a long time to get started again, should they decide to do so, which is earnestly desired by every citizen. A meeting of the directors will be called soon to take action in the matter.

Nothing like the excitement caused by the fire last night has been known since the burning of the Wheeler and Wilson factory a number of years ago.

After many embarrassments and disappointments the Howe Company had come into better shape for prosperous business than it had been in the last ten years. Slowly but surely it was feeling its way to solid ground, and had a most encouraging prospect. The new machine, the product of the knowledge, experience and skill of one of the most accomplished sewing machine inventors in the country, Mr. Rufus Leavitt, was a gratifying success, and the only question with the indefatigable manager, Mr. E. Parmly, was how to put enough of them upon the market to satisfy the increasing demand and not further involve the Company, and this was being done as rapidly as good business judgment admitted of an increase of working force. The men employed were working to the full extent of their ability in producing machines which sold before they were finished. Mr. Parmly had laboured early and late with great judgment and unwearied determination to accomplish this, and few concerns in Bridgeport, on the merits of their production and the prudence of their management, stood a fairer chance than the Howe machine Company did. Coming at such a time the disaster is doubly trying, but we feel that with the understanding of the circumstances, which those most interested have shown heretofore, and the faith in ultimate success, which this disaster, unless it is taken advantage of to the prejudice of the Company, can only check for a season, the easily available room and material may be promptly turned to meet the exigencies of the occasion, and the Company put upon its feet again as soon as it can be possibly done.

MESSRS. McRAE, FORSTER & Co., Limited, Bermondsey. This Company held its second annual meeting on the 25th ult., and a most satisfactory report and balance-sheet were presented, showing a considerable profit on the trading. A dividend of 6 per cent. for the past year was declared payable on the 8th August.



To the Editor of the "Journal of Domestic Appliances and Sewing Machine Gazette."

SIR,—You would much favour the trade if you were to print a cheap book wherein payments on the Hire system can be entered.—

Yours, A SEWING MACHINE AGENT.

[We should esteem it a great favour if a few Sewing Machine Agents would kindly send us a specimen of the book they use. We would then compare them and reproduce the best for the Trade at a small cost.—EDITORS.]

PICTURESQUE BEAUTY OF TREES.—It is no exaggerated praise to call a tree the grandest and most beautiful of all the productions of the earth. In the former of these epithets nothing contends with it; for we consider rocks and mountains as part of the earth itself. And though among inferior plants, shrubs, and flowers there is great beauty, yet when we consider that these minute productions are chiefly beautiful as individuals, and are not adapted to form the arrangements of composition 'n landscape, nor to receive the effects of light and shade—they must give place in point of beauty—of picturesque beauty, at least, to the form and foliage, and ramification of the tree. I should observe, with regard to trees, says the author of "Forest Scenery," that Nature has been kinder to them in point of variety than even to its living forms. Though every animal is distinguished from its fellow by some little variation of colour, character, or shape, yet in all the larger parts, in the body and limbs, the resemblance is generally exact. In trees it is just the reverse: the smaller parts—the spray, the leaves, the blossom, and the seed—are the same in all trees of the same kind, while the larger parts are wholly different. You never saw two oaks with an equal number of limbs, the same kind of head, and twisted in the same form.

IMPORTS OF SEWING MACHINES DURING AUGUST.

H. Loog	£770.
Becker and Ulrich	£31.
Van Oppen and Co	£235.
Rosenberg, Loewe and Co	£30.
G. Meyer and Co.	£60.
Newcomb and Son	£495.
Horne and Crampton	£125.
Millwall Dock Co.	£679.
White Sewing Machine Company	£1,610.
Harris, Goodwin and Co.	£60.
E. H. Rolfe	£600.
Wheeler and Wilson	£2,782.
Allan Brothers and Co.	£20.
W. Penlington and Co.	£8.
Mac Andrews and Co.	£204.
Gordon and Gotch	£35.
Mc Lean Brothers and Co.	£309.



TAKING HIM AT HIS WORD.

Time, 2 p.m.

SEWING MACHINE DEALER—"What on earth have you put the shutters up for, you imp?"

Boy—"Why, didn't you say as when I axed for a 'arf holiday as I was to SHUT UP."

In taking down or repairing sewing machines, iron or steel hammers are generally used. If the work be struck a very hard blow with these hammers, dents or bruises will be left, which are unsightly and unworkmanlike. Hammers made of raw-hide are too clumsy for such work. The best tool is a hammer made of hard cast brass. A convenient size is about three and three-quarters inches long, one inch square at the centre, and made tapering to the ends, which are about five-eighths of an inch in diameter. Both ends are alike and either can be used to give the blow. The corners of the sides can be bevelled off so as to present a rounded form. The hole for the handle can be made about three-quarters of an inch long by three-eighths wide. Make the pattern of the size given, and if a proper draft be made no trouble will be found in casting the hammer with hole complete.

NON-COPYING INK PENCILS.—Ink pencils are useful things, but it is sometimes unfortunate that a copy of the writing can be taken from them by pressing another paper over the script. An ink pencil has now been introduced which does not lend itself to copying. What is written by it cannot be stamped off, either wet or dry.



PARTNERSHIPS DISSOLVED.

T. and F. Roper, ironmongers, Halifax.

Gardner Brothers, ironmongers, Queen-street, Hammersmith.

Laing, J., and Co., ironmongers, Aberdeen.

Dalby and Shalders, ironmongers, Wokingham.

Siddall, J., and Co., ironmongers, Dewsbury.

LIQUIDATIONS BY ARRANGEMENT.

Goodfellow, G. B., and F. F. Goodfellow, trading as Benjm. Goodfellow, iron and brass founders and engineers, Mottram-road, Hyde. July 13.

Waites, E., ironmonger, Barnstaple. July 16.

Gann, J., jun., ironmonger, Whitstable, Kent. August 2.

Griffith, T., ironmonger, Taff-street, Pontypridd. August 1.

Roberts T., ironmonger, Macredy, near Pontypridd. August 7.

BILLS OF SALE.

Shapley, R., trading as R. Shapley and Sons, ironmonger, 55, South-street, Exeter, for £180, to J. L. Thomas and another. Filed June 26.

HOUSEHOLD ELECTRICITY.

AT the Archway House, Bush Lane, Cannon Street, a novel and interesting sight is to be seen by any who care to know to what domestic purposes electricity can now be put. We are most of us aware how advantageously the sewing machine can be worked by the Griscom Motor, but

it is to other purposes that we are invited to see the electric current applied. As we enter we see that the warehouse is illuminated with a soft, white, *steady* light. We know that it is the electric light, but are surprised not to see it bobbing up and down or varying in power as we have been accustomed to behold it at railway stations and many other public places.

It is to the domestic application of electricity that the "Electric Dynamic Company," of Archway House, particularly draw our attention, and they invite all interested to call in and see their little exhibition. They have sixteen batteries, which are charged at night with the Brush Dynamic current, which is conveyed from the street into the building by a wire. Sufficient of the current is thus stored to light ten lamps for ten hours, and at the same time drive a fan to cool the air, a dental lathe, a fret saw machine and several heavy sewing machines. The electricity does not lose its power by being stored in these Dekabath batteries—hence their superiority to others; indeed when we saw the exhibition the batteries had been charged thirty-six hours.

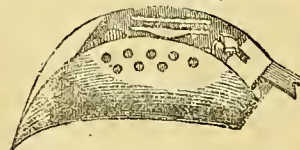
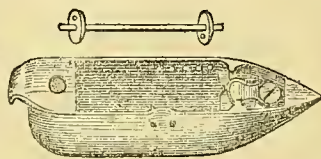
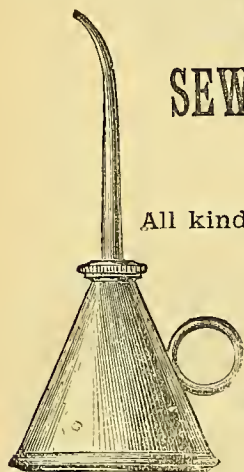
The switching on of one or more additional lamps does not effect in the slightest the steadiness of the light, nor does the working of light machinery, which requires very little force from the batteries. The lights can be illuminated or extinguished independent of each other, and no danger, not even a slight shock, attends the handling of the same. It is now therefore possible in the City of London and in all districts where the streets are illuminated by electricity, to illumine the house at a small expense by purchasing a few of these batteries and connecting them by a wire with the current in the street. Arrangements must of course be made with the Company supplying the power; with the Brush Company in the City of London terms can be made that will come far cheaper than gas.

WILLIAM ANDREWS, SEWING MACHINE SHUTTLE MANUFACTURER, 3, STEELHOUSE LANE, BIRMINGHAM.

All kinds of Shuttles, Reels, Feet, Clutches, Needle Plates.

Oil Cans, Sarudene's Oil in Bottles, Machine Bands.

Rollers and Studs, Screws, Gear Wheels Springs, &c.,

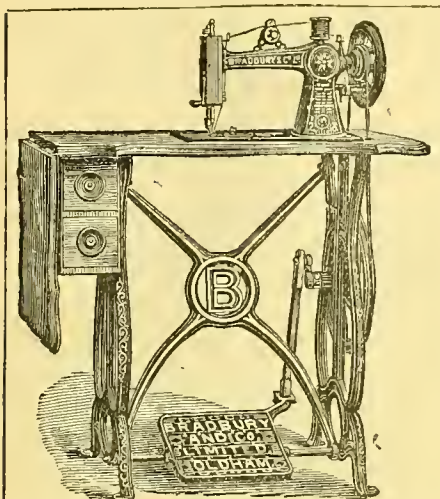


JAPAN TRANSFER WORKS, HOLLOWAY HEAD, BIRMINGHAM. Proprietor, WILLIAM GAY,

Supplies Gold Metal and Color Transfers of the best quality to the Principal Sewing Machine, Bedstead, Bicycle, Tricycle and General Japan Manufacturers in the World. Upwards of 10 years Transfer Printer to the Singer Manufacturing Company. Special designs made to order. Estimates given.

NOTE ADDRESS—

HOLLOWAY HEAD, BIRMINGHAM.



No. 3—ROTARY SHUTTLE MACHINE, THE
QUICKEST LOCKSTITCH IN THE WORLD,
2,000 STITCHES PER MINUTE.

BRADBURY & Co., LIMITED, SEWING MACHINE MANUFACTURERS, WELLINGTON WORKS, OLDHAM.

BRADBURY & CO., LIMITED, are not only the oldest and largest European Makers, but they also make the greatest variety of Machines for all general purposes; they are thus able to supply any class of customers with Machines suitable for their requirements, and are not compelled to recommend *one system only* for all descriptions of work. Their Machines surpass all others in

**SIMPLICITY, RAPIDITY,
DURABILITY AND FINISH.**

They have been awarded
MORE GRAND PRIZE MEDALS
than all the other
EUROPEAN MANUFACTURERS COMBINED.

Depots in all the principal Towns of the Country.

LIBERAL TERMS TO SHIPPERS AND MERCHANTS.

GOLD MEDAL—PARIS, 1872
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GOLD MEDAL—LONDON, 1874.
GOLD MEDAL—MANCHESTER, 1874.
GOLD MEDAL—PARIS, 1878.
GOLD MEDAL—PARIS, 1879.
GOLD MEDAL—ADELAIDE, 1881.
GOLD MEDAL—

PERTH, W. AUSTRALIA, 1882.

AND

TEN FIRST PRIZES

AT LOCAL EXHIBITIONS
DURING 1882.

THE LARGEST

SEWING

Machine "Belt"
Manufacturers.

THE LARGEST SEWING

MACHINE

Oil

Manufacturers.

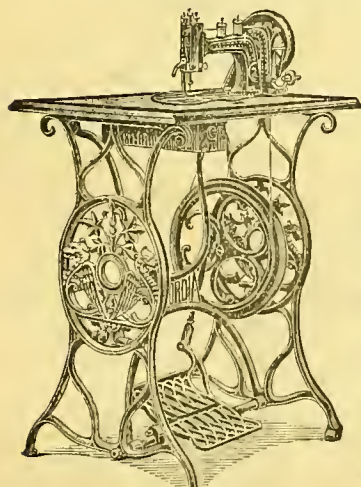
THE LARGEST SEWING MACHINE

FITTINGS

Warehouse.

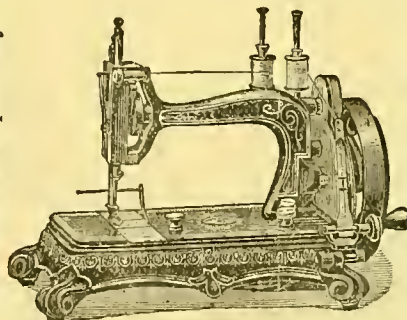
Bishop's Cluster Company, Limited, 25, Hamsell St., London, E.C.

GRIMME, NATALIS & Co., Limited, BRUNSWICK (GERMANY), Sewing Machine Manufacturers.



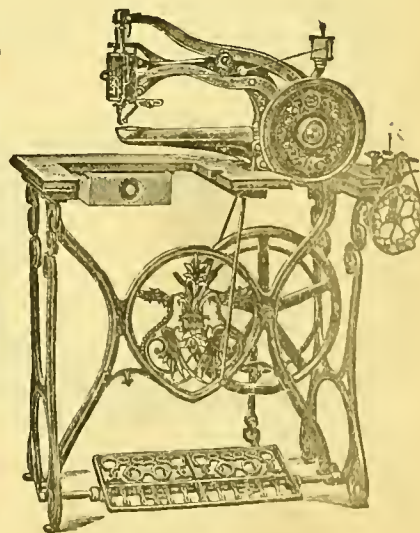
The "CONCORDIA"
(Singer System),
Hand or Treadle.

Wholesale and Export Only.



"ORIGINAL PRINCESS," Hand
Machine, Specially Recommended
is exceedingly popular & very cheap

Best Finish, Latest Improvements.



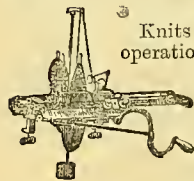
ELASTIC, HOWE,
W. & W., and other systems.
Send for Prospectus.

CHAS. BRADBURY,

Representative for Great Britain,

37, TORRENS ROAD, BRIXTON, LONDON, S.W.

STOCKING KNITTER.



Knits Ribbed or Plain, any size, 2 Stockings at one operation. Knits every variety of Jackets, Petticoats, &c., Cardigan, Fancy or Plain, exactly same as hand.

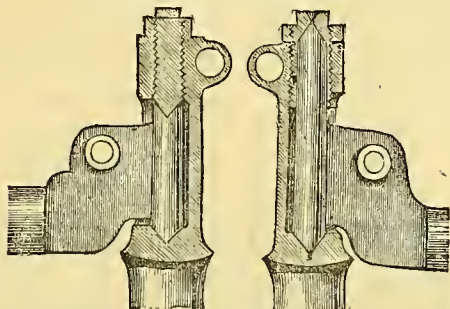
This Knitter obtained the First Prize over others in competition at the Woollen Exhibition, Crystal Palace, London, 1881. 21 New improvements. List 1d. stamp.

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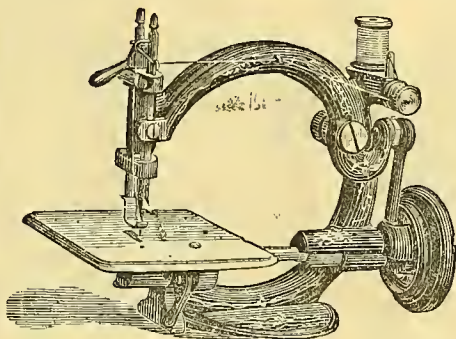
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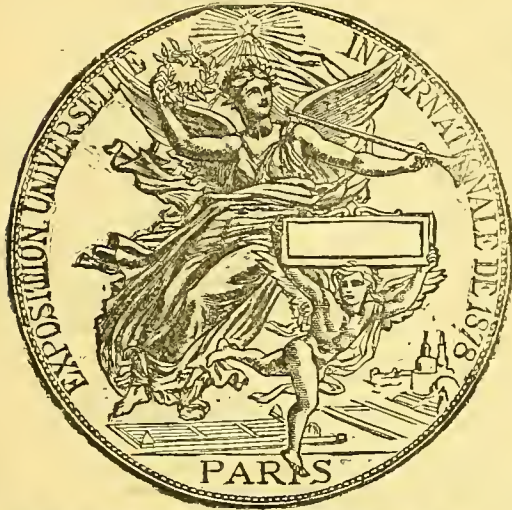
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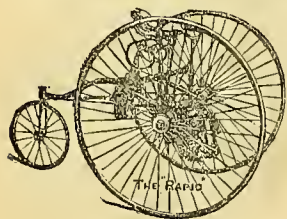
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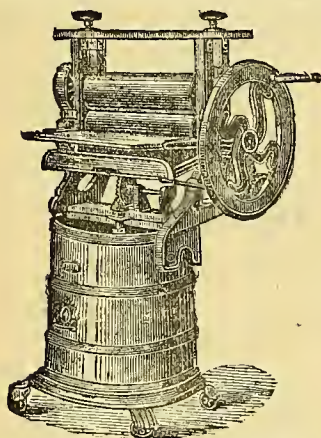
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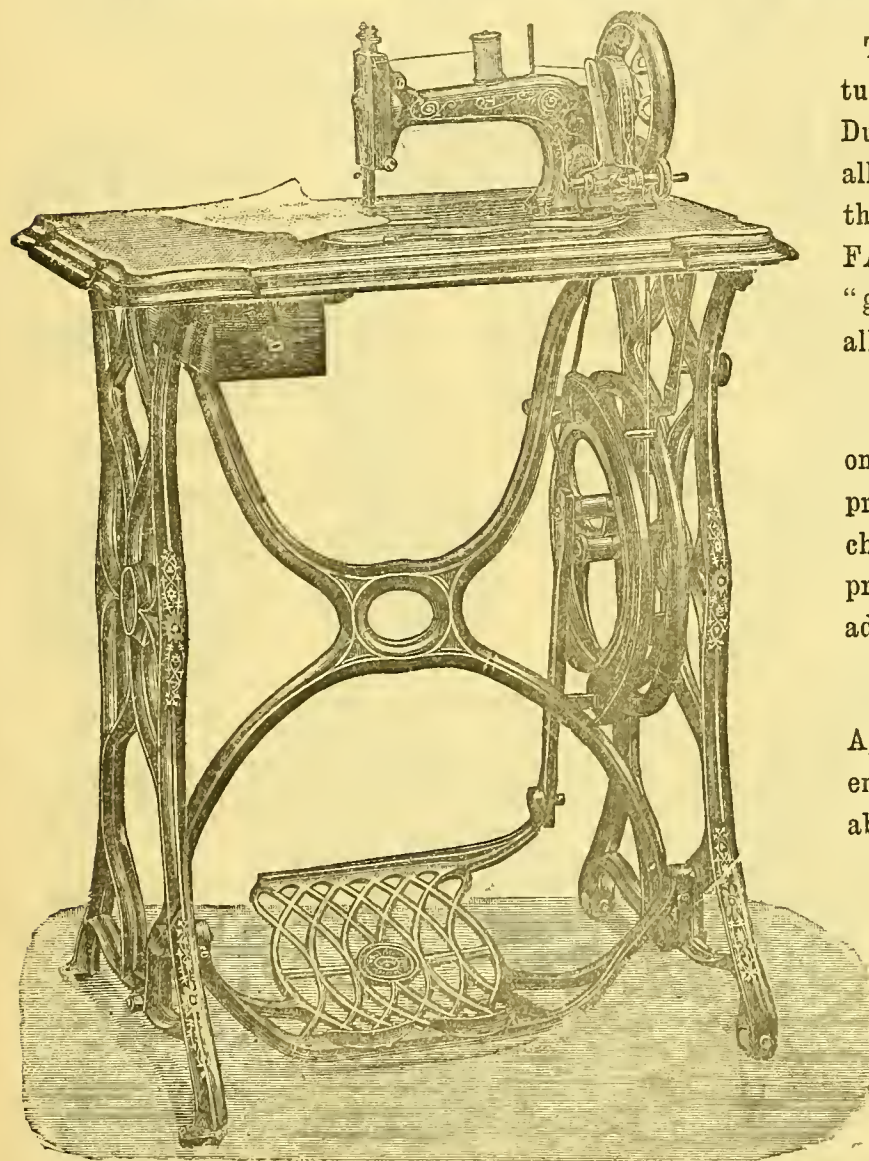
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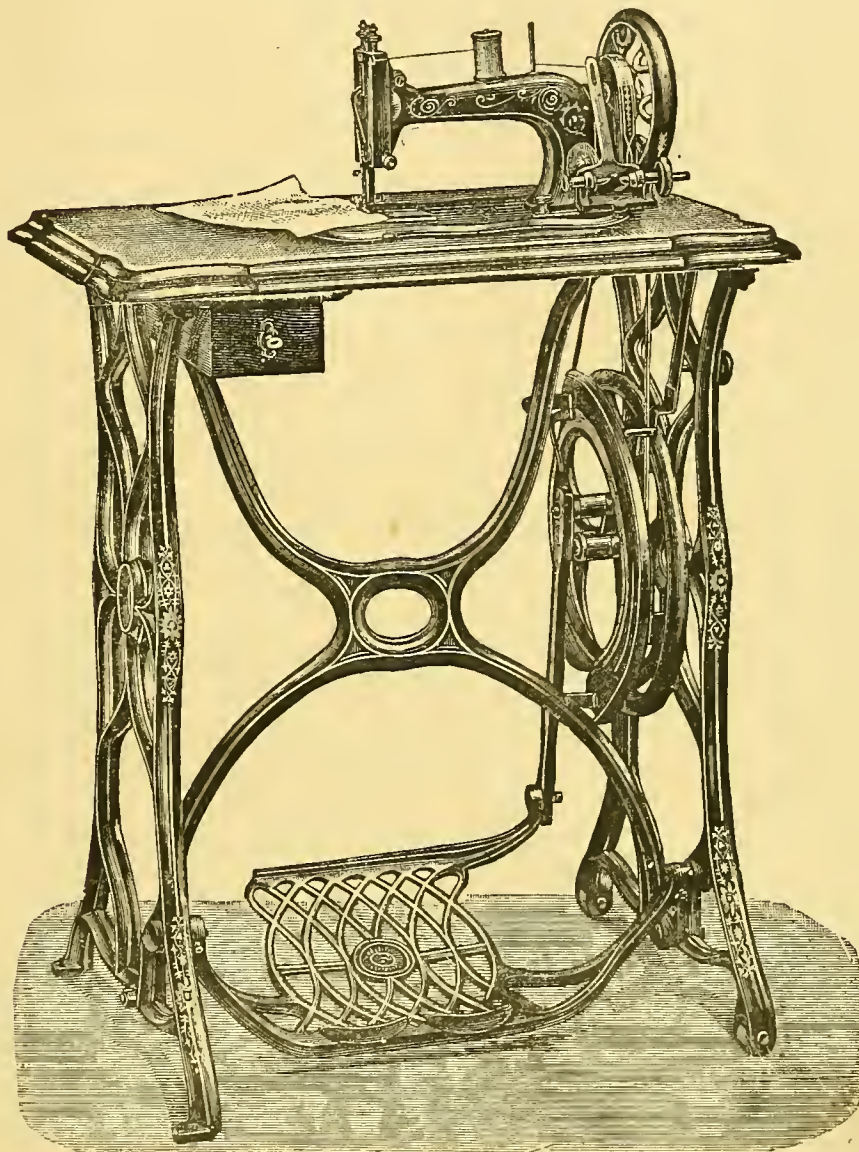
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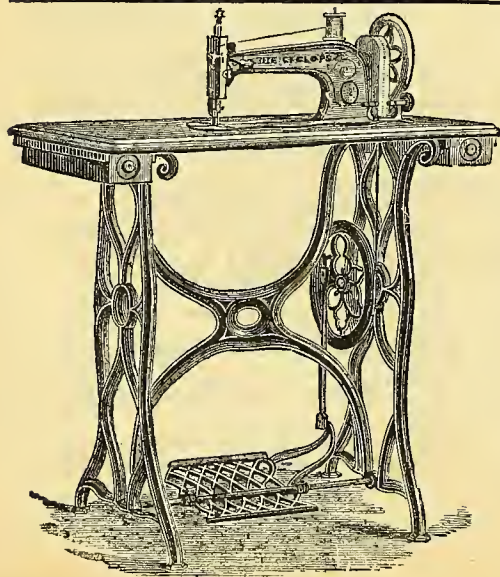
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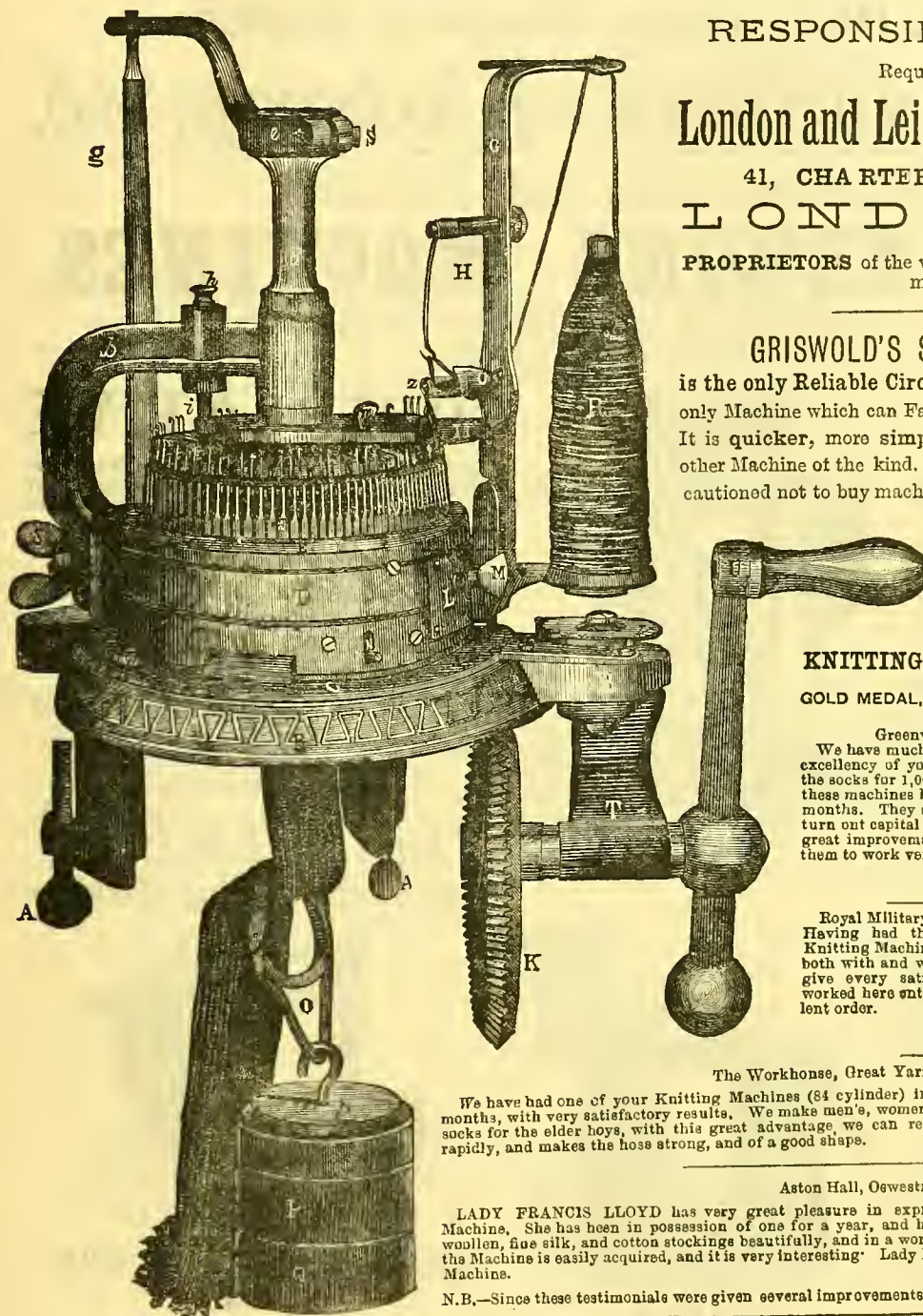
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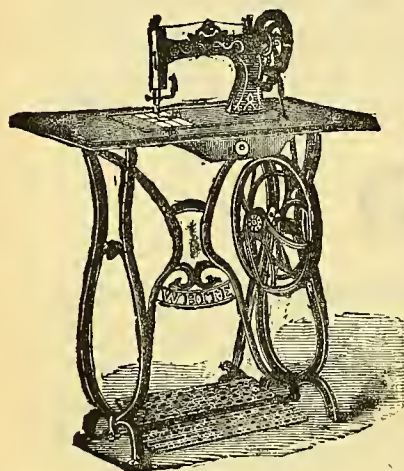
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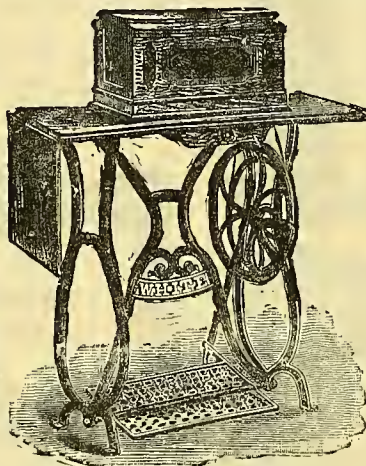
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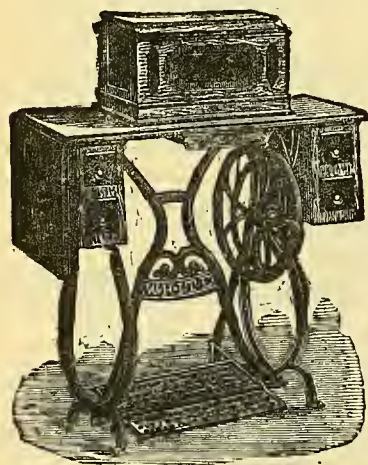
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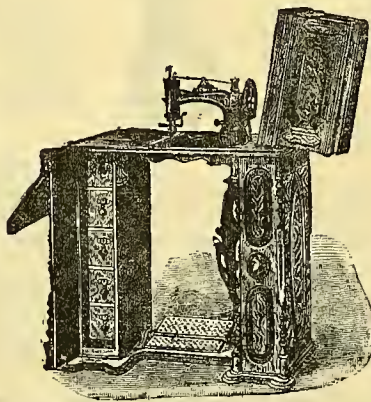
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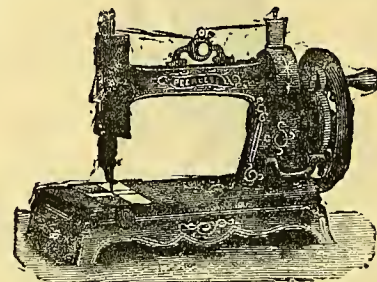
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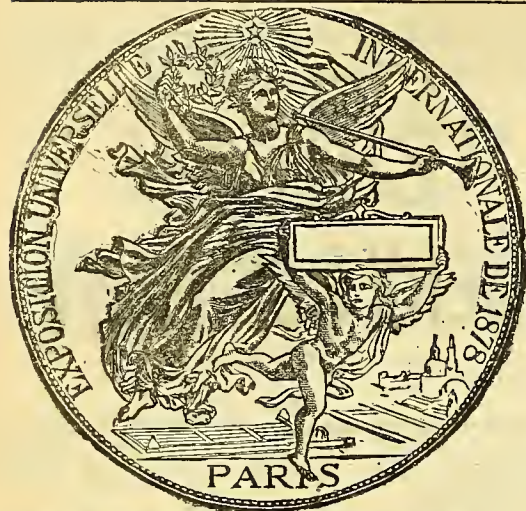
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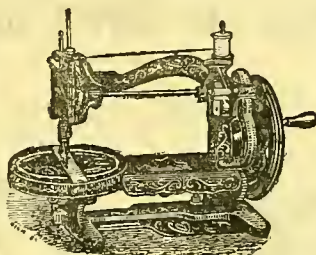


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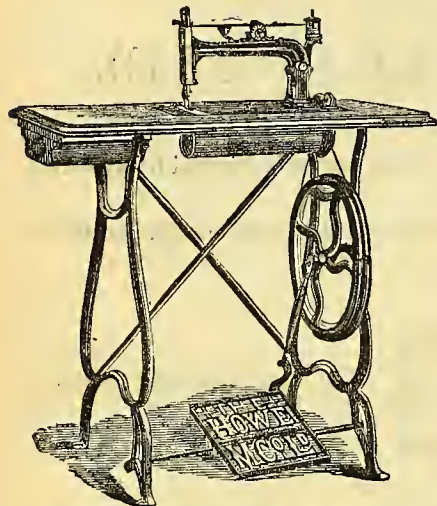
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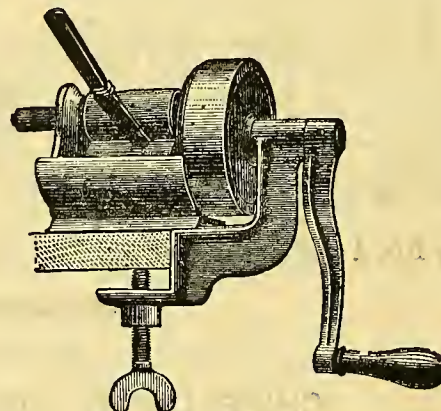
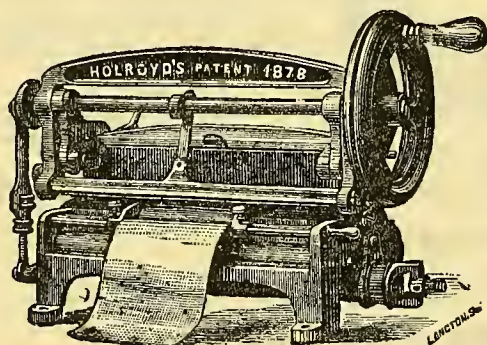
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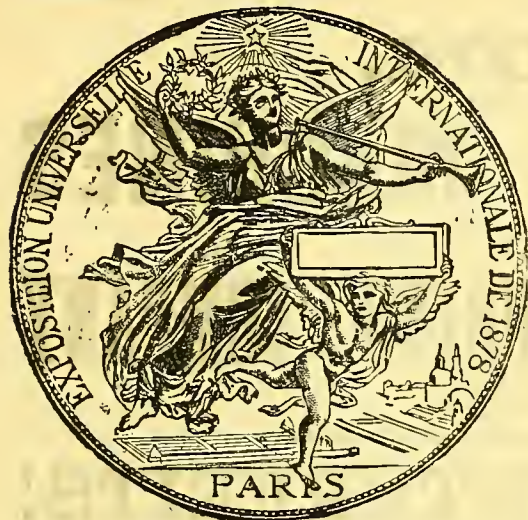


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EARLY SEWING MACHINE ECONOMIES.

MAY I cast in my pebble to further widen the ripple which must have been caused by Chordal's reference to the subject of standards in the manufacture of machinery? In many of our Eastern shops, the question of the entire practicability of working to standards has for years been settled beyond the possibility of argument. In many other Yankee shops the war for and against it is hotly waged, with no signs of yielding on the part of the "powers that be," who still believe in the accuracy of scribe and prick-punch, rules and calipers and the wonderful skill of their "best men." No standard gauges for them, nor micrometer calipers, nor measuring machines, nor any other modern foolishness; and don't they wish that "they could hire some men now as good as those employed by them thirty years ago."

There are still other shops where the matter is being carefully and intelligently investigated, because it has been learned that working in the old way neither produces as good work nor as much of it, and as both price and quality stand in the way of successful competition, the question is raised, Why?

Can some needed light be thrown upon this perplexing subject? Do all who write upon the subject of working to standards of size and distance, and who indulge in long and wordy warfare, get the exact practical bearings in the case? Do not too many look in the wrong direction for the real substance, and seeing what seems to them but a shadow, condemn the whole system without understanding it? Standard gauges, duplicate, or triplicate, are merely for reference; they accomplish nothing except to decide when work is being made and kept up to standard. Chordal's word sample is right, given an adjustable device with which to measure the sample, and by which the measurement may be accurately read and put down in black and white to mean the same wherever inches and feet and fractions thereof are in vogue.

Is not the real substance of this whole matter contained in the sundry and divers devices used for producing any number of parts practically alike, and more rapidly than can be done without them; in jigs, milling cutters, singly and in gangs; starting taps with stems accurately fitting the drilling preceding the threaded portion and insuring the tapping of the holes, both centrally and in line with the drilling? Holes may be tapped in this way with a full confidence that they are right in a fraction of the time occupied in turning the head from one side to the other and squinting at a try-square to be sure that after all not one time in a hundred is the tapping just right? Not always great things, but extremely little ones, are some of these devices. Not patented, nor patentable; very many of them not originating in the brain of some high-priced men employed for the purpose, nor having passed through the hands of designer or draughtsman, but coming from the plain mechanic, who, with upturned sleeves and grimy brow, is continually thinking of plans for expediting and cheapening the work in hand. These little things work wonders in the production of work.

I helped to build the first fifty successful sewing machines put in market by one of the since largest and most successful sewing machine manufacturing concerns in the world. We measured, and laid out, and scribed, and drilled and cut,

and tried, and guessed by box-wood rules. Well do I remember how near I came to shedding tears of vexation and wounded pride at the contemptuous treatment received from the foreman by a steel scale bearing the trademark "D & S., Bangor," with which I had just provided myself. He also gave me a blowing-up for grooving some taps. Said he: Don't make any more such taps for me. The way to make taps is to just file off the thread on four sides, making them square."

This was not the only way in which we jammed and crowded metal away, and tore it off instead of cutting it. Needles were made which cost two hundred and fifty dollars per thousand, and even after the needle department was pretty well organized, more money was paid for the bare work on a single thousand needles than will buy in market to-day ten thousand vastly better ones.

Screws were made by centering a piece long enough for two, turning them up in the lathe, cutting the thread, finishing with a jam plate made of an old file, cutting in two, and nicking many times with a hack saw.

But by-and-bye somebody got a job there who had seen drilling jigs, and filing jigs and a screw machine, and had an idea that a great deal of work done on needles by filing could be done by milling. "Step by step, here a little and there a little," improvements crept in, until it came to be said that an amount of work which formerly cost the company nearly ten dollars was being done for one dollar. As improvements continued, it was found that machines in which the parts were alike could be assembled, and adjusted, and put in order to sew in a fraction of the time formerly taken.

After a few years spent in this school, I found myself in a shop where several styles of sewing machines were to be made, all of them cheap machines. One of them retailed at five dollars, another at fifteen dollars, and two others at twenty-five and thirty-five dollars, respectively. Here was a necessity for some other than the old plan of working, but at the same time the plans adopted must not be too expensive. Such machine tools as we had must be utilized. Commencing with this concern as a tool maker, I developed into a contractor, taking my first job at twelve dollars per hundred pieces, when the proprietor frankly told me that the lowest figure he had been able to get named by any other party was sixty dollars. Several of my competitors had thought the job worth over one hundred dollars.

Said the proprietor, "I don't believe you can make wages at that price, but go ahead, and if you don't come out all right I'll make it up to you." The company were to stand the expense of special tools and fixtures, and I was to have the privilege of making what I chose.

Bending, which had been done by placing a piece in the vise to a scribed line and knocking it over with a hammer, getting no two alike and not one square, was shifted to a little hand planer, and on this, by the use of a fixture which cost but a few hours' work to make, the pieces were clamped all exactly in the same position by a turn of a lever cam and strap. With a fixture in the tool stock carrying a friction roll with a flat groove of the exact width of the piece to be bent, I had only to make a turn of the wrist to fasten and release the piece, and a pull of the crank, and the bending was done. No matter how many pieces were bent in this way, they were practically alike, and square, and one thousand could be bent in less time than it had formerly taken to bend one hundred, no two of which were alike, and which required more time spent on them in

squaring them up afterwards than it had taken to bend them. Next came the milling off of edges to bring them parallel, and to bring all the pieces to a width. This had been done in a milling machine by first milling one edge and turning the piece to mill the other. Giving the milling machine the go-by, I put two cutters at the right distance apart on an arbor, put the arbor in a lathe, made a fixture to take the place of a tool post, having a stud with broad shoulder and collar and nut projecting from its side in a plane with the arbor. On this stud hung a lever, the front end of which was provided with gauge pins by which to set the piece, and a strap and cam lever with which to fasten it in place. The back end of the lever was of suitable length for convenience. Here was a device attached to an old lathe not fit for good work, all the fixtures costing but a few dollars, by which, simply laying the piece in position and clamping, then passing the piece between the milling cutters by working the lever, very nearly as many pieces could be done in an hour as had been milled by the easy-going "by the day" plan in ten hours.

I made bigger pay on this job than I had ever hoped for. It was in the hard times of 1857 and 1858. I was urged to take other jobs, which I did. Sewing machines were built of some sorts by the twenty-five, or one hundred, and no more. Other kinds were first built in sample lots, and afterwards manufactured by the thousand. Who supposes that these machines came together like clock-work, as they did, as like as need be, because there has been \$10,000 or \$12,000 spent in models and duplicates, or triplicate sets of gauges for each kind of machine? Why, there was hardly a hundred dollars' worth of the kind in the whole establishment. The jigs, and fixtures, and methods were what accomplished the desired ends, and the trying together of parts stood in the place of an expensive system of gauges. There are no stronger advocates of standard gauges and means of close measurement than myself, but they can only be useful in connection with correct methods for producing work accurately.

That special machines for doing the different parts of manufacturing light machinery are desirable, and thousands of dollars expended in costly gauges and models are good investments—while it is policy to have every jig finished up all over—even to oil stone quireums—for large companies with millions of dollars of capital, I do not propose to dispute.

I contend, however, that lack of means to make such expenditures debar no small concern from making such tools and fixtures, and adopting such methods as will of themselves act as the best of standard gauges, in that they produce parts wanted practically alike, and, properly used, can produce nothing else.

Starting with this as an expression of my belief, I may in future give your readers some detailed descriptions of how, in many years spent in designing and perfecting plans for producing parts to standards, I have found it possible with fixtures costing but a few dollars, attached to the ordinary tools already in use, to get out better work, and practically to standard, at the same time getting out from two to ten—in some cases even twenty—pieces to where one had been made by skilled workmen in the old way.

INK-STAINS on paper and books may be removed with oxalic acid. Procure a small quantity of the acid, dissolve in warm water, slightly wet the stain with it and it will disappear, leaving the paper uninjured.

A NEW MOTOR FOR THE SEWING MACHINE.

IT has long been an object of desire among all who use the sewing machine to obtain some method of driving it which should be independent of the worker, and many contrivances, including the use of steam, compressed air, gas, and electricity, have been suggested for the purpose. None of these, with the exception of electricity, have been sufficiently good to be generally acceptable. Mr. Watkins, a Clerkenwell manufacturer, has lately completed an invention which promises to be a success, and which can be applied equally well to every kind of machine. It is contained in a box of about 15 in. cube, which supports the machine, and is itself supported by legs like those of the ordinary table, but with no crank, treadle, fly-wheel, or strap. The box contains a length of steel tape, which is wound up to serve as a coiled spring for use, and is prevented from releasing itself by the usual ratchet and click arrangement of clocks. The chief merit of the invention is in a method of compensating the action of this tape in such a way as to make it drive the machine as fast and with as much power at the determination of the run as at the commencement. In most instruments driven by a spring this compensation is with difficulty obtained by the use of the fusee—a spirally-grooved cone upon which the chain winds, and which is introduced between the spring and the mechanism in such a manner that, when the spring is fully wound and at its greatest power, it is only allowed to act at the least advantage upon the moving parts; whereas towards the end of the run it acts with constantly-increasing advantage. In Mr. Watkin's spring motor the place of the fusee is supplied by a contrivance which causes the tape, as it is wound, to form itself into what he calls a "parabolic spiral"—an arrangement by which, as it unfolds, it compensates its own action and drives the machine steadily throughout its run. The box contains also a drum on which the chain is wound, a series of multiplying wheels, an instantaneous brake, which is worked from the immediate vicinity of the needle above, a fly-wheel, and the connections with the sewing machine.

In order to use the contrivance, the tape is first wound up by an ordinary winch handle, a few turns of which will store up sufficient energy for an hour's work, or even more.

The material being placed in position, the brake is released, and the machine commences action. In one or two seconds it is in full swing, the speed being regulated by a milled-headed screw, the regulator, which when set determines the rate at which the machine shall run, and keeps it at this rate until it has either run down or is required to stop. It can be stopped instantaneously by the brake or gradually by the regulator; and the action is so completely under control that, although when at full speed the needle attains a rate of between 900 and 1,000 stitches a minute, it can be set to work so slowly the machine scarcely moves.

The power of the motor is such that the thickness of the material sewn is of little importance, for the speed of the needle is but slightly reduced by passing through ten or twelve layers of unbleached calico or two of leather. In order to meet exceptional resistances the inventor supplies an auxiliary handle, by which, in case of need, additional force can be exerted.

To make an oil that will not corrode or thicken, put olive oil into a bottle and add small thin pieces of lead. Expose in the sun for a few weeks and pour off the clear portion.

A HOLIDAY TRIP.

(By A RAMBLER.)

BEYOND all doubt, there are but few more enjoyable "outings" than a visit to the Channel Islands, and as Jersey is, in many respects, the Queen of the group, we propose giving our readers a sketch of a short trip which we recently paid to that enchanting Isle.

Months of close application to literary work had, naturally enough, produced the results incident to an over-wrought brain, and our medical man promptly insisted upon the necessity for rest and change. "I should strongly advise you to run over to Jersey for a week," he said, cheerily; and though we protested, in the usual manner, that we could not possibly be spared from the editorial sanctum; that we should soon be all right again, &c., &c., he stuck to his text, and before he left we had consented to snatch a week's respite from the monotony of daily toil. By three o'clock that afternoon, we were comfortably seated in the express, hurrying away towards Southampton. On arriving there we went on board the steamer, selected our berth, and then sauntered back again to the hotel, where we plied a vigorous knife and fork, that being according to our experience, the best preparation for a sea trip. The night was a most lovely one, and when we stepped upon deck, just before the mails were shipped, the full moon shone down upon the placid waters of the harbour. It was not until we had passed the "Needles," and were fairly on our way across the channel, that we turned into our berth, where we quickly fell asleep. About half-past nine, the next morning, we steamed passed the "Corbière," a group of rocks on the Jersey coast, which, when the weather is at all rough, insists upon the steamer saluting it by several ominous dips! On this occasion, however, we certainly deemed the "custom more honour'd in the breach than the observance." Presently, rounding another point, we steamed into St. Aubin's Bay, which is said by travellers to be "a miniature Bay of Naples." Report has it that, on Her Majesty's first visit to the Channel Islands, she exclaimed, on entering this bay, "I did not know that there was so lovely a spot in my dominions."

Like all sea-side places of resort, Jersey has no lack of hotels and boarding-houses; but, as a rule, the charges are exceedingly moderate, and the accommodation all that could be desired. Fixing our head-quarters within five minutes' walk of the promenade and pier, we partook of a hearty meal, and then sallied forth to inspect the town of St. Heliers. The tourist is struck with the cleanliness of the place, and, though some of the streets are exceedingly narrow, there are many handsome shops—superior indeed to those found in some of our larger towns. The public buildings are not numerous or imposing. In the Royal Square is located the Court-house, where the proceedings are conducted in French, that being the official language of the island; and the Parish Church, close by, is also well worthy a passing visit. Churches and chapels of all descriptions are plentiful, and the tourist, whatever may be his theological bias, will find no difficulty in suiting his taste in that respect. About ten minutes' walk from the Royal Square is the "Hospital," a large building, which serves both as hospital and workhouse. It is a fact—though not very flattering to visitors from the other portions of the United Kingdom—that there are scarcely any Jersey paupers; those who make up the section of the island population being nearly all of English or Irish descent. After a long

walk upon the sands of the adjacent bay, we turned our steps homeward, and, feeling rather fatigued, retired to rest at an early hour.

Rising betimes next morning we found that a stroll upon the beach stimulated our appetite in no small degree, and whilst diligently attending to the wants of the inner man, we were informed that a four-horse car would call at our hotel about ten o'clock, in order to convey visitors round the island. When the said vehicle drew up, we could not fail to admire its appearance, and, with our natural promptitude, we quickly secured the "box-seat." The car was soon filled by tourists, most of whom were accoutred in the orthodox style, which includes we may say, light felt or straw hat, with encircling veil or "puggery;" field-glass duly slung at the side, and cabbage walking-stick! This last has become quite a branch of the local industries, side by side with the manufacture of eau-de-cologne. There is a species of cabbage cultivated in the Channel Islands which grows to a very considerable height, and the stalks, when carefully cut and polished, make light but excellent walking sticks; and it is decidedly "the correct thing" to be furnished with one of them.

Away we went, clattering over the stones with great *éclat*, until we emerged into the road skirting St. Aubin's Bay. The contrast between the rippling waves breaking gently upon the beach and the luxuriant vegetation overhanging the adjacent cliffs, was most charming to one so recently escaped from the smoke and dust of London; and, at every turn of the road, a lovely prospect awaited the eye. Farms, which look like model gardens, so neat and trim in all their arrangements, were nestling here and there among the trees, whilst, ever and anon, some of the far-famed Jersey kine looked up sleepily at us as we swept past their peaceful abode. There is an utter absence of monotony in all Jersey scenery. Bays abound, yet there is no sameness whatever about them. Hill and dale alternate, and graceful avenues afford frequent shade from the burning rays of the sun.

At mid-day we halted awhile, near a bold headland on the North-western coast. Standing near the edge of the high cliff, a magnificent panorama lay spread before our delighted gaze. Far beneath our feet, the restless waves of the Channel were tossing to and fro. In the distance we could descry the Guernsey coast, whilst apparently near at hand, the Island of Sark, with its attendant satellites, Herm and Jethou seemed to invite us to pay them a visit also.

After feasting our vision for some time, we entered the Plémont Hotel, where a substantial repast awaited us, and to which we did ample justice. Accompanied by a most intelligent guide, we presently inspected the famous caves of Plémont, and when the horn sounded for us to resume our drive, it was with no little reluctance that we quitted this most picturesque spot. The ride homewards lay through the interior of the island, past romantic churches half hidden by the luxuriant foliage, and frequently we caught a glimpse of the sea from some hill top. Remaining quietly at the hotel that evening, we enjoyed the fragrant weed on the verandah, from which we commanded a view of the busy pier, whilst Fort Regent, with its bristling cannon, seemed to stand out in the twilight like a huge sentinel. The following day we decided to ramble on foot through some of the neighbouring hamlets. Meeting with a few congenial spirits, we sauntered together through the parish of St. Lawrence. Whilst standing near one of the

farmsteads, and expressing our admiration at the perfect arrangements on every hand, we were courteously invited by the owner to enter, and inspect it at our leisure. This we gladly did, and were presently initiated into the mysteries of agriculture, especially that branch of it relating to the growth of early potatoes. On leaving, a refreshing draught of Jersey cider afforded us an opportunity of wishing success to the worthy proprietor of this model farm. The space at our disposal forbids a detailed account of our sojourn in the island, but mention must be made of another day's outing whilst there. A miniature railway, looking almost like a toy model, took us one morning from St. Heliers to Gorey. A short walk brought us to Mount Orgueil, where stand the ruins of a famous castle—the history of which is romantic in the extreme. From its summit we could clearly see the French coast, and with the aid of a good telescope, were able to descry in the far distance the turrets of Coutances Cathedral. A hardy son of Neptune rowed us across Grouville Bay, where we landed within a walking distance of the town, noting, as we skirted the shore, heaps of seaweed, or "*vraic*," drying in the sun, preparatory to its being used for manuring the soil.

And thus our week's holiday sped away, alas! but too quickly. With body and mind alike refreshed and invigorated, we returned to London, promising ourselves, however, that, on the very first opportunity, we would certainly revisit that "Garden by the Sea." If our readers have already included Jersey in their holiday rambles, we feel sure they will endorse what we have said respecting it; if they have not, we strongly advise them, when next considering that interesting, but oft perplexing problem, "Where shall we go?" to settle it quickly in favour of this enchanted spot.

THE ART OF DOING BUSINESS.

IT seems strange in this age of material progress that there is so little information extant about the art of business.

Probably four-fifths of our town and city population are occupied with commercial pursuits, and yet though so large a part of the thought of the community is trained in the direction of making money by trade, there is no literature on the subject, and there seem to be but few established principles about how to get on in business.

If a young man enters into any of the liberal professions, or even if he becomes a mechanic, he has no difficulty in getting information that will help him to learn his life-work. The lawyer, doctor, clergyman, and man of science have their text-books by the score. In nearly every trade there are similar works under the name of guides or books of information or reference.

There is even a talk of publishing text-books for journalists, though the editorial profession is one of the newest; yet for a young man who is going to learn business there is scarcely anything. Trades and traders have flourished since the times of Joseph and Hiram of Tyre, but all the rich store of experience gained by merchants and dealers in the past is lost to the present generation. The literature of business is confined to a few biographies of famous men like Amos Lawrence, Astor, Vanderbilt, and the like, with a few catchpenny and insignificant publications having titles such as "How to get Rich," but which are of little practical value to any one. That such books have not been written seems incredible. That they

could be made none can deny. It only needs the right person to collect the facts in order to make a book of the most instructive and fascinating character. But some people will say, "You cannot make any systematic theory of business, because in practice it is not systematic." They will talk about success in commerce depending on luck or circumstances, and that no rules can be laid down for guidance in trade. This view shows very shallow reasoning, for wherever any profession is practised it must at the same time have an art, and that art can be acquired if one only goes about it in the right way. So much for general introduction. Now to the practical question.

Let us suppose a young man of sixteen or eighteen to have passed through a public school or academy, or, still better, to have graduated at college, and to be received into the counting-house of some established firm. Everything at first strikes him by its novelty. He has entered into a new field, where even the language is strange and incomprehensible to him. What does he do? If he is ambitious and energetic he strives to learn the details of everything about him. He learns the mode in which the affairs of the firm are conducted, the origin of the business, the method of keeping accounts, the relations of his superiors with other merchants, their rivals in trade or customers, as it may be. He sees how goods are received and delivered, and if he is wise he will make himself acquainted with all the sources of supply from which the goods are obtained. This, however, is but the beginning, and will serve as a foundation for something better. He must now learn the principles upon which his employers conduct their affairs. He should know all about the market price of everything they deal in, which in itself is a study for a lifetime. He must be able to tell what things most affect prices, and what, under any possible circumstances, the tendencies of trade will be. Still more important it is to know how to read men, to find out who can be trusted in giving credit, which in itself is an art that but few excel in, and then only after long and varied experience. Lastly comes the still broader study of political economy, and the relations of production and demand, with all the endless and complicated questions connected with local, domestic, and international trade.

A writer on this subject well remarks:—"If a boy is taken when young into a mercantile house, and employed in real transactions involving great responsibility, and familiarised day by day with the spectacle of men whom he looks up to, and who are masters of their work, engaged in the various problems of trade, his whole moral and mental constitution is moulded to suit the exigencies of his calling. He learns when to be bold and when to be cautious, and he learns above all things, the enormous difference between facts and fancies. The training is no longer very common, we admit; but neither is the type of merchants which this training created. The modern type approaches more nearly to the gambler than the trader. The 'graduate' of the business college rushes into the market with his cheque-book, and his invoices, and his accounts current, and feeling himself utterly incapable of working for distant results, or following the thread of complicated combinations, tries to make his fortune by a happy throw or two in some speculative commodity, and furnishes after a few years, one of the innumerable wrecks which now warn men away from 'business,' and give the great money markets of the world such a close resemblance to Baden-Baden and Homburg."

THE NEW BANKRUPTCY ACT.

A NOTICE in the *London Gazette* reminds the world that the new Bankruptcy Act, which only received the Royal Assent on the last day of the session, is already, in one important respect, in operation. More than one of its clauses take effect at once, as all concerned should bear in mind; but the subject of the notice to which we refer is, perhaps, the most important of these clauses. It is what is known as the unclaimed funds and dividends clause. The provision has long been called for by all who are concerned in bankruptcy reform, the abuse which it strikes at having been one of the most serious and scandalous of the many which have arisen under the Act of 1869. Now that it is passed, it makes a real commencement of the new system under which trustees in bankruptcy and liquidation are to be placed. Among the many opportunities they have hitherto had of plundering creditors, their opportunity in respect of unclaimed funds and dividends has been largely made use of, and the temptation to use it has, in fact, been one of the occasions of misconduct in the management of bankrupt estates by which the whole business has suffered. Estates have gone into liquidation, and nothing more has been heard of them, the entire funds, when questions were asked, being stated to be insufficient for costs, but no accounts being rendered to creditors. In other cases dividends have been declared, but declared in such a way that creditors who had money to receive were not likely to hear of the declaration, or, if they heard, would find it most inconvenient to go to the place appointed to receive the money. In addition, there always arises in a prolonged liquidation an accumulation of unclaimed money which belongs to creditors who have either died or left the country, or, where the single amounts are too small to be much worth claiming, though the aggregate may be valuable to the trustees from whom they are not claimed, and in whose hands they remain. The unclaimed funds and dividends have thus been a source of illegitimate profit to the class of trustees, and the desire to possess them has been one of the potent causes of the ardent competition for appointments in bankruptcies and liquidations, which would, perhaps, be unintelligible if the trustees who compete, and the solicitors who aid them, only received a fair reward for professional services. Hence, in part, the subsequent neglect and mismanagement, and the utter indifference shown to the interests of creditors. Accountants and lawyers have not only eaten up as much as they could by direct charges, but they have had the advantage of an unacknowledged reversion of the estate, which would be increased by every artifice employed to prolong the liquidation and to delay the declaration of dividends. The final result is that, according to the calculations of the controllers in bankruptcy, there must now be several millions of "nobody's money"—the figure of four millions has been named—in the hands of the class of trustees who have hitherto preyed upon bankrupt estates; and it is in respect of this fund that the clause in the new Bankruptcy Act, to which attention is now called in the *Gazette*, will make a great difference. A total and complete change is made in the law, and, there can be little doubt, will also be made in the practice.

A little attention to what the law has hitherto been and to the wording of the new clause will make the change quite clear. Under the bankruptcy legislation of 1869 it was not intended that unclaimed funds and dividends should remain in the hands of trustees. It was enacted

that all moneys remaining in their hands and not distributed for three years after they were received should vest in the Crown, and the Treasury was authorized to appoint persons to get in this property of the Crown, arrangements being made at the same time for the payment to the rightful owners if and when they should make their claims. In point of fact, however, this vesting clause was of little use, on account of the length of the interval elapsing between the date of the moneys being received and the date of the vesting; while so little was thought practically of this vesting that the Treasury, we believe, never appointed any persons to get in the money. Now, however, it is provided that a trustee in possession of any dividend or fund which has remained unclaimed or undistributed for six months after it was "claimable or distributable" is forthwith to pay the money into the Bankruptcy Estates Account at the Bank of England; and all other funds in bankruptcy or liquidation of which he may have been in possession for two years without distributing them are also to be paid into the same account. The Board of Trade is also authorised to appoint persons to get in these moneys; but, apart from this power, which is much the same as in the former law—the difference being that the Board of Trade, and not the Treasury, is the appointed authority—the distinction between the new Act and the old law is that the money unclaimed does not now merely vest in the Crown, but a distinct obligation is imposed on all persons in possession of it to pay it in. It becomes illegal for them to have it at all, and they cannot plead by way of excuse, as trustees have been heard pleading, that they do not know what to do with the funds in their possession, which are not their property. It may be doubted even whether a trustee who does not pay in will not be guilty of a misdemeanour; but in any case under the Act he may be very sharply punished, as a Board of Trade order to him to pay in, by another clause of the Bill, can be enforced, if necessary, by the immediate committal of any defaulter. In another important particular also the new law differs most materially from the old. Nothing was said formerly as to how the Crown was to get information of what was due to it. Apparently it was left to find out the best way it could what moneys were in the hands of particular trustees, and sue them in the ordinary Courts in the best way it could, and probably at enormous expense, for these moneys—a reason which probably weighed with the Treasury in not appointing any persons to look after this *damnosa hereditas*. Now the Board of Trade will have no difficulty in finding out. Every trustee in any bankruptcy, liquidation or other proceeding under any former Bankruptcy Act must, if called on, submit his accounts to the Board of Trade for audit. The information must accordingly be given to the Board of Trade when demanded, and the hope which many fraudulent trustees have had that their proceedings would never be inquired into has thus been falsified. If there are no accounts to be submitted, so much the worse for the defaulters. If they have come into possession of money, and have simply kept it for costs, without taking the trouble to have bills of costs properly made out and taxed, then they must pay over the whole fund, or set to work to have the bills made out and the taxation effected, if they can. In any case there must be accounts. There is no chance of their being allowed to keep money through the ignorance of those who have a right to it.

It remains to be seen how the clause will work, but

various direct and indirect advantages to the public must apparently accrue. Some money ought to come into the new Bankruptcy Estates Account at once. There must be not a few honest trustees, when all is said, and the natural accumulations in their hands they will be willing enough to get rid of. Other trustees who might be disposed to act dishonestly will find it to be to their interest to act fairly when the law is at last armed against them, and there is no loophole for escape. Whatever sum is thus obtained will all go towards increasing the revenue, and the interest on any sum which it may be possible to invest will be a set-off to the expense of working the Act itself. The Act provides that other moneys will also be paid in to the same account, but the funds to be derived from old estates and old proceedings ought at first to be the most important. It will be some gain to the public that funds which are "nobody's money" are thus made use of for a public purpose. The main advantage of the clause, however, will be to purify the atmosphere of the Bankruptcy Courts and of the proceedings in Bankruptcy. The rendering up of illegitimate gains and the submission of accounts to the Board of Trade will probably at once get rid of the whole tribe of trustees and lawyers who have fattened on bankruptcy plunder. Those who fail to account and to cash up will at once be branded as dishonest, and their calling will be gone. The Board of Trade, we imagine, under the power of veto they now possess as to the appointment of trustees by creditors, are not likely to let pass without objection a person who has failed to pay what he owes under the old Acts to the Bankruptcy Estates' account, or who has failed when called on to submit proper accounts. Improper practices under past Acts will thus meet with punishment at once, and scandals under the new Act will be prevented. The *Gazette* notice by the Board of Trade as to the unclaimed funds and dividends is thus a warning to all concerned that a new *regime* in bankruptcy has begun. The days of unrestricted plunder of creditors, it may be hoped, have definitively come to an end.

THE HISTORY OF TOOLS.

No. II.

By DR. ANDERSON, C.E., F.R.S.E.

IN a certain class of tools the required form is embodied in a circular cutting instrument, which is guided unerringly by an iron arm, when the revolving cutter shapes out the reverse of its own form, as in cutting the teeth of wheels; but the circular cutter may be guided in any other course, regular or irregular, or the article may be similarly passed under the cutter, and thereby rendered capable of developing any kind of figure which may be required in the whole range of the arts of construction. In all those tools, and in many others not mentioned, it is wholly a system of copying from a pattern by transfer, and the methods of applying the principle are practically unlimited.

The great lesson to be drawn from the consideration of this principle of transferring from a copy, where the tools merely repeat themselves, and thus become the parent of other tools of the same nature, is this, that the progeny of the said tools have the good or the bad qualities of the parent tool from which it was derived; that if the original tool has not truth inherent in its own structure, whether of true circles, straight lines, or the many other tool virtues, then the tool cannot impart those virtues to other tools, nor is it possible for any real goodness to come out of a bad

automatic tool. Hence the importance of having the highest excellence in the innate qualities of the breed; and where it does not exist in the stock naturally, then the virtues can only be acquired by reverting to the more primitive class of hand-tools. By means of hand-labour, combined with extreme care, skill and patience, the sought for conditions of truth are ultimately reached, and at a great expense; and the desiderated virtues once acquired and embodied in the automatic tool, will transfer themselves to other tools *ad infinitum*.

After copying, the next important point to observe in machine tools is the instruments which men by experience have found the best adapted for treating different materials either by cutting or detrusion, and likewise to note the rate of motion at which the cutting or detrusion operations are found to be most efficiently effected. The natural laws which determine the conditions here referred to are not clearly understood at the present time, but there is now an immense number of facts accumulated on that point in a particular direction, but they have not yet been generalised into laws. One hundred years ago the cutting of cast-iron was a secret which few men could practice. Cast iron appeared to be the most obdurate in its resistance to the cutting instrument.

The range of velocity found most suitable for different substances lies rather wide; cast iron, for example, requires a slower motion than wrought iron, and may be said to range between 12ft. to 20ft. per minute according to hardness; sandstones, from their structure, require a slower motion in the planing machine when being shaped into blocks or columns; and a slower motion still is necessary by the Aberdeen granite turner, where the action is detrusion, and the edge of the detrusion instrument or disc moves in unison with the granite column. Going in the other direction, the limit of speed has scarcely been reached; a velocity of 8,500 revolutions per minute is employed in the fine cutting of wood, and even that high speed is not found to heat the instrument to a degree which would necessitate discontinuance of the operation. It is different when the piece of wood itself is driven at that speed, as in the case of wood-turning, because from the friction exerted on one point only the temper would soon be taken out of the cutting instrument. This remarkable difference arises from the swift revolution of the cutting instrument, where two new conditions are found to step in. The first is that due to the extent of the cutting points on the circumference of the instrument, where each point acts in turn, thus giving a momentary rest to all the other points. Then, secondly, from the instrument whirling at such a high velocity, it is in the position of a blowing fan, and is thereby kept cool by the presence of the atmosphere.

There are some other minor points which are of great practical importance. When a good tool has been once completed with all the cardinal virtues, then the question arises—Has it the conditions of surface, both in regard to extent and hardness, that will enable it to see a reasonable old age, and yet retain its original faculties both in regard to truth and accuracy? Now tools differ greatly in this respect. Some tools make a fair appearance at the outset, but a few years' hard usage seems to take all heart and character out of them, while the properly constructed, sound-surfaced tools retain their excellence for a long period.

Another of the minor virtues is general convenience, easy access to the various parts, the arrangement of the

handles for manipulation, and their being so combined that the attendant has not to waste his time in moving from the point of action in order to reach them—the radial drill, for example. In some of them the horizontal movement cannot be effected without walking to the extremity of the radial arm. The handles should all be concentrated, so that a perfect adjustment of the drill may be made without moving the eye from the centre point; any defect in this respect increases the cost of future production.

Another highly important point is that every tool should not only be sufficiently well made, but that the means of adjustment and compensation for wear shall be such that the general soundness of the fitting can be maintained, and that the articles produced by the machine during its lifetime shall be perfect, and require no filling afterwards. This is the true condition to be reached with tools, and this high standard is not within sight unless the tool have a combination of all the virtues, and which are by no means to be found in every tool, even in many of those with a grand exterior. Lancashire maintains a very high standard, and to Manchester more especially belongs the honour of having set a good example to the whole world, and which is fully acknowledged by the tool-makers of all nations.

In the previous remarks upon the tool subject the part that man plays has been the most prominent, but when we come to consider the materials with which the tools are made, or the proportions on which they have been constructed, or the force by which they are to be moved, then we find ourselves at every step treading close upon the hidden secrets of Nature, man's part becoming entirely subordinate, his province being to observe and apply the natural laws so far as his knowledge extends.

The materials for tools chiefly consist of cast-iron, wrought-iron, and steel. So far as the tool-maker is concerned in fashioning them into form, the principle of copying by transfer is again the leading feature. A pattern is first made for the founder, which he imbeds in sand or other refractory material. When the pattern is removed, the mould or empty space is filled up with the liquid metal, which runs into it by gravity. Beyond this, it is almost entirely natural law which the founder has to study and to obey in order to get good castings, and the founder's practice is chiefly derived from former experience of success or failure, which is just as true philosophy as that which is grounded upon the inductive theory of the thinker, and, as a rule, is equally reliable.

It is precisely the same with the practical operations of the smithy. Man's efforts are wholly directed to obtain the required forms by copying from the permanently embodied idea in some tool, at first faintly perceptible in the swages of the smith, then in a remarkable degree by the higher development of Cort's rolling mill—and, lastly, by the more modern stamping system, whereby the viscous lump of iron is compressed into the perfect copy of an iron mould, by the agency of a heavy blow under the Nasmyth hammer, which is the greatest smithy improvement of modern times; but each of those and many other methods of copying are merely modifications of the one general principle.

When we think of any sort of material beyond the working treatment of their mechanical properties we seem to be in another world. Take, for example, a piece of common wrought-iron; it seems to us as of the earth earthy, but if we are closely questioned in regard to the reason for its

various properties we find that we scarcely know anything. Tracing it from the ore through its various stages until it is in the hands of the smith is comparatively easy. We know the natural law that governs its elasticity, the limit of its elasticity, its ultimate strength; that it can be welded; that it is ductile, and can be drawn out into a fine wire; that it is malleable, and can be spread out into a sheet, or worked round from the sheet into a goblet, and may be gathered back again if by so doing it served any useful purpose; but when we think of the marvellous changes which have taken place amongst its molecules during the operation we are lost in wonderland. To many minds the piece of cold iron seems to be a solid; under the pressure of the testing machine it is shown to be an unstable fluid. When the smith has the misfortune to leave a piece too long in the fire it vanishes; it has found evil companions and gone off under an assumed name and a new character. When a piece of iron is broken, and carefully examined under a microscope, we can see that it is composed of fine crystals; but these crystals we are told are composed of innumerable molecules which are not to be seen by the microscope, being smaller than the human mind can imagine; still, the smith feels himself under their influence. In homely words, he speaks of the iron being "red short" or "cold short," without thinking that he is on the threshold of some of the impenetrable secrets of nature. The steel-maker can take advantage of the molecular properties; with heat he can push them asunder, and infuse amongst them the subtle vapour of carbon, and the iron becomes steel, highly improved in most of its mechanical properties, and with an increase of strength and elasticity. It may be inferred that each iron molecule is a little world in itself, surrounded with a thin wrapping of infinite space, no single molecule being in actual contact with any other molecule. We have reached the limit of subdivision, so far as the engineer dare venture. The investigating philosopher, however, ventures much further with his speculations; he tries vainly to penetrate into the supposed ultimate atoms of matter of which the molecules are composed, but further we need not follow. Suffice to say, that a piece of common wrought-iron is altogether a mystery, and teaches man the lesson of humility.

The correct forms to be given to materials in the construction of tools or machinery depend entirely upon natural principles. Natural form consists in giving to each part the exact proportion that will enable it to fulfil its assigned duty with the smallest expenditure of material, and in placing each portion of the materials under the most favourable conditions of position that the circumstances will admit of. Such natural form is not only the most economical, but, strange to say, it is always correct in every respect, and is invariably beautiful and lovely in its outlines. Why it should be so we cannot conceive, but it is a difficult question to answer satisfactorily. Our duty in construction, therefore, is simply to obey the natural law so far as we know it; if we do obey the law, then we have the satisfaction of seeing beautiful outlines produced at the minimum of cost. Still, there is no credit to be claimed for merely doing our duty, nor scarcely any reward except the approving whisper of "well-done" from the inward monitor. If, on the other hand, through want of knowledge or from any other cause we do not comply with the natural law, but introduce our own lines, our productions are ugly, and a pecuniary fine is remorselessly inflicted as well, a fine that cannot be evaded; and some of the British workshops are

the colleges where the law is best taught, both by precept and example.

In the application of force to the working of machines or tools, the true office of the maker is to use or apply the force in that condition which best suits the immediate purposes; and he shows his ingenuity by its expenditure in actual or useful work, with the least loss by friction, or the introduction of complicated or unnecessary moving parts. Before this society it would be superfluous to say that force cannot be increased by any mechanism that man can devise. When we have reached our highest excellence as constructors, the utmost we can do is to expend force in the best way. Up to a century ago it was a popular notion that by combinations of wheels, pinions, fly-wheels, and other devices of the engineer, force could really be increased, but that delusion has long since passed away from Lancashire. Even down to a comparatively recent period the notion prevailed that it involved a waste of force to take motion from the periphery of the fly-wheel of a steam engine, yet in all the books written upon the subject, from the day of Ferguson downwards, the principle was clearly set forth that one pound on the long arm of the lever was equal to a hundred pounds on the proportionally shorter arm, or that the one pound, multiplied by its motion, was equal to the hundred pounds multiplied by its lesser motion. It was the deductive mind of the late Sir William Fairbairn (whose name and memory we all revere) that broke through the thralldom by which we were bound, and ever since the application of true principles, as depending on the circumstances of each case, has extended all over our own country and the world generally.

HEATING AND HARDENING OF STEEL.

THE following article on the tempering of steel tools will be of interest to sewing machine repairers. It is from the columns of the *Scientific American*:

To understand how to properly harden and temper steel tools and other articles is fully as necessary to the machinist now, when most small tools are kept in stock by dealers, as it was twenty years ago, when each shop made its own tools. Lathe and planer cutters, cold chisels, milling cutters, and several other tools and appliances are liable to breakage, and must be redressed at the anvil, refinished, and re-hardened and tempered. But many of these tools are ruined in the attempt, and this destruction usually comes in the hardening.

Some mechanics attach much importance to a hardening pickle, but probably failure comes as often by injury in heating the article as by hardening and tempering. An evenly distributed heat of the proper temperature is absolutely requisite to success, and this it is not always possible to assure by heating in an open fire. One portion of the article is liable to be over-heated, while another portion is under-heated; judging of the amount of heat by colour is not always to be trusted; a dark corner or a cloudy day changes the conditions from a light shop and a sunny day sufficiently to make a great and telling difference in the amount of heat judged by sight.

A perfectly reliable method of heating for hardening is by means of the lead bath. It is an easy matter to keep in the shop a crucible or iron pot of lead to be used as occasion demands. The article to be heated for hardening will not suffer when in the lead bath, even if not closely watched, as is necessary at the open fire; the melted lead cannot pass

to a degree of heat injurious to the steel. But one condition must be strictly observed—the lead must be pure and clean; it is best to buy the mercantile pig for this purpose. A manufacturer of pipe threading and pipe cutting tools in a New England city, desiring to abandon his old time open fire method for the lead bath, melted a lot of old lead pipe partially corroded, and mixed with it a quantity of type metal. His hardening was a failure, until he used pure lead.

In order to harden well it is necessary to heat the article through and through. If the piece is of unusual thickness, as a tap or reamer of three inches or more in diameter, it is better to drill a hole through it from end to end, so that the heating can be even and the hardening be equal. A tap of four inches diameter broke squarely across in the hardening. It was of solid steel. The drilling of an inch hole from end to end was practiced, and a large number of the same size taps were hardened without a failure. The surfaces of the fracture of the broken tap showed plainly the evidences of unequal heating and uneven cooling.

INVENTORS' RIGHTS.—No person can make a patented article for his own use without infringing the patent owner's rights, except under the following circumstances, namely: 1. Any person may make a patented article for experiment, that is, to ascertain, *bona fide*, if the article will operate as set forth in the patent. 2. Any person may make a patented article for the purpose of determining whether the statements in the patent are true. 3. Any one may make a patented article to be used in connection with new improvements as a model before the Patent Office.

HOW A WOMAN SHOULD BE DRESSED.—It has been well said that a woman to be perfectly dressed, should be so clothed as to attract no attention. Those who aim at sensational novelties in dress, have perhaps never realized this, and yet it is true. Lord Chesterfield once said to a friend; "I saw Mrs. M. in the Arcade to-day." His friend asked: "How was she dressed?" knowing that she was cited as the most tasteful woman in her set. "Really," was the reply, "I can remember no one article of dress she wore, and yet it was a complete pleasure to look at her."

TO KEEP MACHINERY FROM RUSTING.—Dissolve half an ounce of camphor in a pound of lard, or in that proportion, according to the quantity used, and before it cooks enough to be hard mix in enough black lead to give the whole the colour of iron. This should be well and thoroughly applied all over the metal, being careful not to omit any spots, and let it remain over night. The next day rub off clean with rags. If kept dry from the weather, metals treated in this way will keep perfectly free from rust all the winter. Olmstead's varnish is made by melting two ounces of resin in a pound of fresh, sweet lard, melting the resin first and then adding the lard and then mixing thoroughly. This is applied to the metal, which should be warm, if possible, and perfectly cleaned, and afterwards rubbed off. This has been well proved and tested for many years, and is all that it has been recommended to be.

To calculate the speed of a pulley, multiply the diameter of the driver by its number of revolutions, and divide the product by the diameter of the driven pulley. The quotient will be the number of revolutions of the driven pulley. If the diameter and revolutions of a driver pulley are known, to find the diameter of a driven pulley that shall make any given number of revolutions in the same time, multiply the diameter of the driver by its number of revolutions, and divide the product by the number of revolutions of the driven pulley. The product will be its diameter. To ascertain the size of a driver, multiply the diameter of the driven pulley by the number of revolutions you wish it to make, and divide the product by the revolutions of the driver; the quotient will be the size of the driver.



CORRESPONDENCE.

To the Editor of the Journal of Domestic Appliances and Sewing Machine Gazette.

SIR,—How could I obtain each month the return of Imports from January to end of August, and from March to end of August, as your journal does not give some months—May, for instance.

Yours truly,

A. B. LOWNDS.

[The returns of machines imported, furnished by the Custom House are at times very incomplete. We fear you cannot obtain the information you require. We have now made arrangements enabling us to give regularly every month the imports of Sewing Machines, but as the information concerning exports is so vague—no name for certain being given—we think it useless, and have discontinued giving it.—EDITORS.]

To the Editor of the "Sewing Machine Gazette."

DEAR SIR,—We hand you per this post a copy of the *Glasgow Herald* for the 18th, containing a notice of the death of Mr. Simon A. Howe.

It was the last wish of Mr. Howe that his body should be laid beside that of his father in America, but we have not yet heard whether the removal has been effected. We will let you know further particulars.

Please notify this in your Journal.—Yours truly,

N. P. STOCKWELL.

Re "HEBERLING PATENTS,"

To the Editor of the "Sewing Machine Gazette."

SIR,—In order to allay the anxiety of our customers relative to proceedings taken in the above matter, we beg to notify the trade and

others interested, that we the undersigned have jointly purchased the "Heberling" Letters Patent, with all the rights and title thereto, thereby terminating all further legal proceedings as against parties who have purchased machines from us, which Action we trust will be satisfactory and appreciated.

C. H. SENAUER, 55 and 56, Chancery-lane, London, W.C.

JOHN HOLROYD, Tomlinson-street, Hulme, Manchester.

September 8th, 1883.

THE HEBERLING SCARE.

To the Editor of the "Sewing Machine Gazette."

SIR,—It is told of a Lord Chancellor that, after having listened for many days to the ingenious arguments of learned counsel as to whether the defendant had infringed the patent rights of the plaintiff, he remarked—that "all this precious time, ingenuity, and money ought to have been saved, as the plaintiff never had any patent rights in Great Britain."

The Lord Chancellor's remarks apply to the Heberling claim, as they never had a valid patent in Great Britain.—Yours truly,

KIMBALL AND MORTON.

IMPORTS OF SEWING MACHINES DURING SEPTEMBER, 1883.

Van Oppen and Co...	..	..	..	£271
H. Loog .. .. .	..	..	..	£3,686
E. H. Rolfe .. ..	..	..	..	£21
Horne and Crompton .. .. .	..	..	..	£2,365
Wheeler and Wilson .. .. .	..	..	..	£3,475
Wileox and Gibbs .. .. .	..	..	..	£20
Richter and Co. .. .. .	..	..	..	£10
Pickford and Co. .. .. .	..	..	..	£40
Phillips and Graves .. .. .	..	..	..	£10
Becker and Ulrich .. .. .	..	..	..	£535
Rosenberg, Loewe and Co... ..	..	..	..	£120
Chinnery and Johnson .. .. .	..	..	..	£10
F. Stahlschmidt and Co. .. ..	..	..	..	£48
Craven and Co. .. .. .	..	..	..	£10
Rennick, Kemsley and Co. .. ..	..	..	..	£400
Wingate and Johnson .. .. .	..	..	..	£48
Millwall Dock Co. .. .. .	..	..	..	£200

THE STATE OF THE SEWING-MACHINE TRADE.

THERE are many who indulge in the Englishman's privilege, and grumble; others take more desponding views, and predict the utter downfall of the sewing-machine trade and the ruin of all concerned in it; but still that branch of commerce exists, and, though it may be quiet, it is in a healthier condition than it has been for some time past. The late years of disastrous failures have purged the trade severely, and it is better through it. There always will be a demand for sewing-machines, and if the trade will study their own interests a little more bright times might even yet come again.

The home demand for sewing-machines is quiet, but we hear of several firms who are just now doing a large export business. London retailers are complaining bitterly, but those at sea-side resorts are doing very well—the influx of visitors bringing more money in the town. One firm—Messrs. Jones & Co., of Guide Bridge—inform us they are making double the quantity they were producing when we saw them a year or so ago. By-the-bye, our readers will note that the word "limited" no longer occurs in the style of this firm—Messrs. J. & W. Jones having bought up all the shares. The continental demand is pretty good just now.

THE VERTICAL FEED SEWING MACHINE.

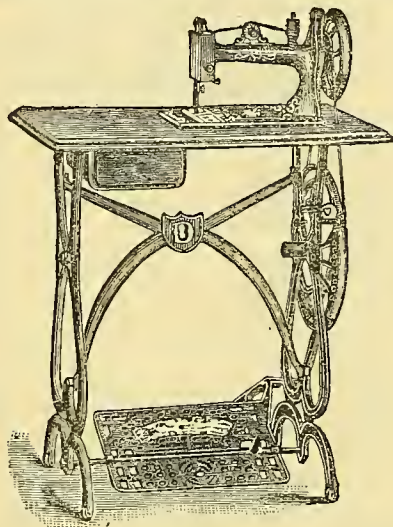
Beyond dispute the only really Perfect Machine yet produced.

AWARDED THE
ONLY GOLD MEDAL

AT THE

SYDNEY & MELBOURNE
EXHIBITIONS,

In Competition with all the leading Machines.

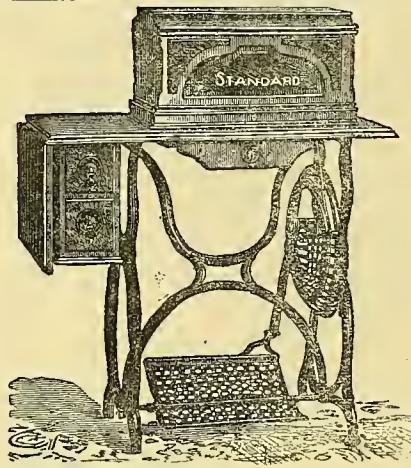


This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking, and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity, and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the Work and every information, may be obtained at the Offices of the Company,

52, QUEEN VICTORIA STREET, E.C.
SOLE ADDRESS IN LONDON.

THE
LIGHT-RUNNING
STANDARD
Has No Equal.



NONE SO SIMPLE,
NONE SO DURABLE,
NONE SO RELIABLE.

Examine it Before Purchasing any other.

RENNICK, KEMSLEY & CO.,
4 FINSBURY CIRCUS, LONDON,
ALSO,
Melbourne and Sydney.

TO SEWING MACHINE TRADE.—Special offer of a quantity of Wheeler and Wilson's covers with locks 4s. 6d. each (sell 15s.) Walnut tops for boot machine stands, 5s. 6d., Wheeler and Wilson's stands.—Singer stands.—Britannia Company, Colchester.

SEWING MACHINE DEALERS.—Ornamental iron tables for refreshment rooms and private houses—in good demand.—Britannia Company, Colchester, makers of Lathes or Engineers' Tools, Fret Saws, &c.

HIRE AGREEMENT FORMS, 6d. per dozen, post free. Office of this Paper, 20, Wormwood Street, London.

SOLE AGENCY WANTED for Sewing and Domestic Machines' own premises, large town in West, or situation as Depot-Manager, Inspector of Agents, or Representative at Exhibitions. Twelve years' miscellaneous experience. Age 30. What offers.—Apply, X.Y.Z., Office of this Journal, 4, Ave Maria Lane.

TO SEWING MACHINE DEALERS.—We offer sewing machine stands—Wheeler Singer, or for hand machines. Lathes and fret saws for amateurs. Lathes with buffing and polishing appliances for sewing machine repairing or bicycles, or for turning mangle rollers. Above are worth the attention of the trade. Terms on application to Britannia Sewing Machine Company, Colchester.

JOURNAL OF DOMESTIC APPLIANCES

AND

Sewing Machine Gazette.

IN our last issue we cautioned the sewing machine trade against selling the Heberling machines until some arrangement was made whereby they would be protected from any actions for damages on account of the sales of that article. Since then we have most carefully enquired into this matter, and are pleased to inform our readers—at least that portion of them who have sold genuine Heberling machines, purchased either of Mr. Senauer, of London, or of Mr. Holroyd, of Manchester—that they need no longer have fears of any action being commenced against them; and, moreover, they are quite at liberty to go on selling as heretofore. If they refer to our Correspondence column they will see a letter signed by Mr. Senauer and Mr. Holroyd, which states that the Patent Rights in the Heberling machine have been bought at a very great cost by these two gentlemen, and they alone are now entitled to make and sell this machine. The assignment made to them protects all their customers, but it is not reasonable or fair to suppose that these gentlemen will pay for the protection of those who have sold machines made by other makers, which are an infringement of the Heberling Patents.

Our readers may, perhaps, like to know the origin of all this litigation and bother; a statement of the simple facts—"a plain unvarnished tale"—will help them to comprehend exactly how matters now stand. It is this:—Mr. Senauer, trading as the Heberling Running Stitch Sewing Machine Company, of 46, Cannon Street, sold to the English trade the Heberling Machine, partly manufactured in America and partly by Mr. J. Holroyd, of Manchester, and on every one of which he paid a royalty to the Heberling Company in America. Noticing the success which attended the sale of this machine, several firms in this country, without making any arrangement with Mr. Senauer, set about to make and sell it. As they paid no royalty, they, of course, could sell it cheaper. Mr. Senauer at once appealed to the American Company to stop these manufacturers from infringing the patent on which he paid a royalty. But no notice—at least, no practical notice—was taken of his request, as, unfortunately, Mr. Senauer's agreement, made by his attorney in America, did not contain the clause providing for protection against infringers, and the Company insisted that Mr. Senauer should protect his own interest at his own expense, which he declined to do, for, having to pay royalties, he did not see the justice of this proposition, and, deeming this treatment most unfair, Mr. Senauer declined to pay any further royalties. Thus, for a time, matters continued, when suddenly the American Company, swooping down like an eagle on its prey, commenced actions against Messrs. Senauer and Holroyd.

In our July issue we gave particulars of the sums paid by various firms—Mr. Senauer and Mr. Holroyd each having to pay £250 for royalties. It was thought by the two last-named gentlemen that matters would end here as far as their customers were concerned; but it was not so. Having tasted of the monetary gore of its victims, the agents of the American Company were not satisfied, but longed for more, and commenced actions not only against the customers of Messrs. Senauer and Holroyd, but against those of the infringing manufacturers, and obtained from Messrs. Rylands & Sons £40, the Wanzer Company £50, Messrs. McKenzie & Co. £40, &c., and announced their intention of proceeding against all. Under such circumstances, there was only one honourable course open—cost what it might—that of protecting the trade. It is much to the credit of Mr. Senauer and Mr. Holroyd, that at a great cost they bought, on September 8th, the Patent Rights, and thus protected their customers; and moreover we understand they will compensate those who have already suffered so far as concerns the sale of the *genuine* Heberling, which, by-the-bye, has affixed to each machine a registered number. It now remains to be seen what the other manufacturers will do!

It will be seen by a letter we publish in another column that Messrs. Kimball & Morton have doubts as to the patents being valid; but we may say that we ourselves have seen the remarks of Mr. Aston, Q.C., thereon, who considers them valid in every respect, and he is acknowledged to be the best legal authority on patent matters. Moreover, it is not likely that a man who is so practically acquainted with the technicalities of sewing machines as Mr. Holroyd, would pay £250 for royalty on an invalid patent; and a keen, shrewd American, like Mr. Senauer, would not pay a like sum for a mere myth. Now, it remains not only for the infringing manufacturers to cease making these machines, but to make some arrangement to protect their customers in respect to their past sales.

We have gone at great length into this matter because we wish the trade to clearly understand the position in which they are placed. If they have sold the genuine Heberling bought of Mr. Senauer, or Mr. Holroyd, all is well, and they can continue to sell that machine. But, if bought of other manufacturers—well, they had better look out for squalls.

THE new factory of the Wilson Sewing Machine Company, at Wallingford, has been opened with considerable *éclat*. No fewer than three thousand guests assembled to give a "god-speed" to the undertaking, and to inspect the factory. In the evening the fourth floor of this monstrous building was cleared, and terpsichorean and other amusements were indulged in.

IT is not every member of the Sewing Machine trade who is destined to become so popular in his country as Mr. R. W. Wanzer is in Canada. Little more than a month

ago the founder of the Wanzer Sewing Machine Company was entertained at a banquet given in his honour, in which members of the Government, judges, and the *élite* of the Canadian society were present. In the course of his reply to the toast of his health, Mr. Wanzer gave some interesting accounts of his manufacture of sewing machines. We have collected information from various sources, and shall give in our next issue a full narrative of the life of this distinguished member of the sewing machine trade.

WE have to thank our numerous subscribers for complying with our request to forward specimens of the Hire Cards they use for entering payments. We are preparing one which will embody the best ideas of the many, and a copy of which will be given with the next issue of this journal to every subscriber.

WE understand that Messrs. Seidel & Naumann, of Dresden, are about to bring out a new machine. Its mechanism will be very similar to the Singer, but in outward appearance it will be totally different. The arm is to be very high. We hear of several other new machines now being constructed in the Fatherland, and doubtless these will soon be placed upon the market.

IN another column will be found a notice of the registration of the London Sewing Machine Company. What is to be the speciality of this Company we cannot say; but in our next we hope to give our readers full particulars concerning it. Of late years several sewing machine firms and companies have died out, and ceased to be, but no new ones have sprung into existence—at least so far as concerns the English trade. We cannot, therefore, let such a rare event happen without knowing something about it.

LONDON GAZETTE.

PARTNERSHIPS DISSOLVED.

Mapplebeck and Lowe, ironmongers, Birmingham.
Dennis, George, Davy, and George Henry Merryweather, ironmongers, &c., Sheffield.
Samuel Langley, Francis Johnson and Robert Smyth, hardware merchants, Wolverhampton.

BILLS OF SALE.

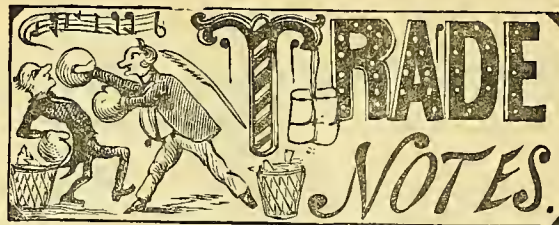
Jones, W., ironmonger, Birmingham House, High-street, Conway, Carnarvonshire, for £250, to W. Hughes and others. Filed August 29.
Merriman, H., dealer in ironmongery, 34, Benham-street, Battersea, for £65, to J. Pym. Filed September 1.
Worsley, W., ironmonger, Leighton Buzzard, Bedfordshire, for £80, to W. Branton. Filed August 17.

LIQUIDATION BY ARRANGEMENT.

Jones, J. P., iron and brass founder, Oxford-street, Warrington, and Knutsford-road, Latchford-road, Cheshire. September 4.
Killick, R., ironmonger and gasfitter, Preston-street and Castle-street, Brighton. August 16.
Jones, G., ironmonger, &c., High-street, Pwllhell, Carnarvonshire. August 29.

RENEWAL OF BILLS OF SALE.

Dodds, W., ironmonger, 30, Swan-street, Manchester, for £600, to R. Pollock and Sons. Originally filed February 28, 1879; re-registered August 28, 1883.



MR. GEMSON, London agent for the Universal Knitting Machine Company, of Leicester, has removed from Dashwood House, Broad-street, to 41, Aldermanbury, E.C.

MESSRS. BURRELL AND Co., domestic machine manufacturers, have removed from 1, New Oxford-street, to 184, Wardour-street.

MRS. AMELIA LUCAS, ironmonger, Liskeard, has disposed of her business to Mr. Richard Faull, who has acted as manager for the past six months.

MESSRS. HORN AND BEACH have removed their furnishing ironmongery and sewing machine departments to Queen's-road, opposite the new post-office, Watford.

THE London Sewing Machine Company has been formed to carry on business as manufacturers of and dealers in sewing machines. This company was registered on the 10th inst., with a capital of £1,000, in £1 shares, the following being the first subscribers, each of them having taken one share:—*J. Hunt, paper merchant, Ludgate-square; *R. Workman, paper merchant, Ludgate-square; J. B. Hunt, Clerk, Woodford; G. Hunt, clerk, Woodford; *T. J. Denne, linen-faced paper collar manufacturer, London Works, Old Kent-road; T. M. Denne, linen-faced paper collar manufacturer, London Works, Old Kent-road; and M. C. Denne, engineer, Christ Church-road, Eastbourne. The subscribers denoted by an asterisk are the first directors.

MR. THOMAS BROOKS informs us that he has left the service of the White Sewing Machine Company, after very pleasant relations with them.

MR. J. CHESHIRE, sewing machine agent, has removed from 115, High-street, Seven Oaks, to Cazeneuve-street, Rochester.

A FINE red or yellow lacquer for brass may be made by taking good shellac varnish and colouring it with dragon's-blood for red and with turmeric for yellow. To be nice the lacquer should be filtered before using. The varnish can be made by taking a good quality of shellac and dissolving about half an ounce to a pint of 95 per cent. alcohol. Slightly warm the brass work before applying the varnish.

GLYCERINE reduced with alcohol is good to use on fine oil-stones. Where a large surface is to be ground use about three parts glycerine to one of alcohol. For tools with fine points, as gravers or diamond-point turning tools, use the glycerine almost pure, adding perhaps three or four drops of alcohol.

INK-STAINS accidentally made on the mahogany or black walnut furniture of sewing machines may be removed by touching the stains with a solution of nitre and water—say about eight or ten drops to a spoonful of water. The application may be made with a pointed stick for small spots, or a feather or bit of rag for large ones. When the spots disappear rub the place at once with a cloth wet in water. If the stains still remain repeat the operation, using a little stronger solution.

SEWING MACHINES AT THE AMSTERDAM EXHIBITION.

(BY AN OCCASIONAL CORRESPONDENT.)

OUR readers will not be surprised to hear that the White Sewing Machine Company, which has the finest display at this exhibition, has gained the gold medal for the excellence of their sewing machines. Their exhibit, which can be viewed from three sides, has the best position in the gallery, and is most attractively arranged. The Howe Sewing Machine Company, who also make a very large and imposing show, have obtained a gold medal for their bicycles and tricycles. There is no doubt but that this Company must have got a long start over other English manufacturers in selling 'cycles on the Continent, their numerous established agencies affording them exceptional facilities for pushing their goods. Passing on I notice that the Light Running Standard is well exhibited, and that the attendant in charge knows how to handle the machine.

Turning to the German section I see that Messrs. Frister and Rossmann cover a large space with their machines. The arrangement of the stand is not good, and the exhibits are not displayed to the best advantage. A man at work with a dirty braiding machine decorating pocket handkerchiefs, which he endeavours to sell to the public, does not prepossess one in favour of this stand, and invite more minute inspection. The machines shown, which seem carefully made, are upwards of 50 in number, and are imitations of well-known English and American machines. Directly opposite this stand Messrs. Lane and Timaens, of Lobtau-Dresden, show a stand of knitting machines on the Lamb principle. I thought that if the operator had been a little more expert she would certainly have shown the machines to better advantage. Passing on I notice that Messrs. Seidel and Naumann, of Dresden, make a very pretty exhibit of sewing machines—indeed, it is a more imposing show than that of Messrs. Frister and Rossmann, and I observe that all the machines are more highly finished. In these machines I notice an automatic winder on the Carter system. A very tasty show is made by Gebr. Nothmann, of Berlin, whose sewing machines bear the inscription "Sewing Machine Manufacturing Company." What is the cause of this? Is it that they sell better in Germany if the public are led to suppose they are of English manufacture? Next to the stand of Messrs. Frister and Rossmann is the exhibit of Messrs. Biesolt and Locke, who make an improved imitation Singer head, and also a bag sewing machine and a button-hole attachment to fit to any machine. Mr. Pfaff, of Kaiserlautern, occupies a large oval space and makes a very good display of imitation Singer machines. I notice that he is very lavish with his circulars, in which he politely informs the public that he is in hopes of competing for a prize with the Singer Manufacturing Company, but that his machines are imitations and in many respects are superior to the original. In order that the catalogues thus widely distributed may not be merely glanced at and thrown away, Mr. Pfaff attaches to each a number, which will represent a chance in a lottery for a machine that will be raffled for at the close of the exhibition. There are many valuable improvements in Mr. Pfaff's machine as also in many others, and I only think it a pity that in design and mechanism they should not show more originality, and

not only copy leading English and American machines. I saw imitations of Jones, Bradbury, Wanzer, Wheeler and Wilson, and Singer. Messrs. Grimme, Natalis and Co., of Brunswick, show four different kinds of machines splendidly made and well finished. Indeed, all their manufactures, which embody many improvements, give proof of most careful workmanship. Mr. Hurlu shows several machines—one in particular I note—"Abeille"—in which the upper mechanism resembles that of the Grover and Baker, and the under that of the Wanzer. Its external appearance is good, but that is all that can be said about it. There are many other stands I have not described—some being English—but as the machines of the latter are well-known to the readers of this journal, I have purposely given preference in this short article to those of German make.

OBITUARY.

MR. SIMON A. HOWE.

We regret to announce the death of Mr. Simon Ames Howe, the son of Mr. Elias Howe, the inventor of the Howe sewing machine. The deceased was a director of the company for the production of these machines, and for some years took an active interest in the conduct of the business. His health having failed, he went to Boulogne-sur-Mer, where he has resided almost constantly for the last 13 months. The change, however beneficial at the outset, did not accomplish the object desired, and his death took place on the 15th ult.

ALLEN'S "BLIND STITCH" ATTACHMENT.

THIS novel American invention is applied exclusively to the Wheeler & Wilson machine. It is especially useful in stitching side-linings in the vamps of boots, where the stitch must not show through to the outside, but it can be applied to many other uses. The work is done with the rapidity of average sewing machine speed, and the liability to show an occasional stitch through on the outside is avoided. The needle used for this work has a tapering flat point, directed at right angles to the groove for the thread, being the reverse of the ordinary flat pointed needle. This attachment is applied to the No. 6, No. 7, and No. 10 machines.

THE AWARDS AT THE AMSTERDAM EXHIBITION.

The following were awarded for sewing machines at the Amsterdam Exhibition:

DIPLOMAS OF HONOUR.

The Singer Manufacturing Company of New York (for machines of new construction, for different purposes).

The Company H. Vigner, of Paris.

GOLD MEDALS.

Biesolt and Locke, Meissen.

Frister and Rossmann, Berlin.

Seidel and Naumann, Dresden.

Howe Machine Company, Glasgow, for bicycles and tricycles.

Hurlu, Paris (for the fine construction of machines for tool making).

White Sewing Machine Company, Cleveland.

SILVER MEDALS.

A. Opel, Rüsselsheim.

Rennick, Kemsley and Co., New York and London. (Standard.)

BRONZE MEDALS.

Grimme, Natalis and Co., Brunswick.

Nothmann Brothers, Berlin.

Turner, Brussels.

SEWING-MACHINES AND THEIR MAKERS.

HAVING, from time to time, had repeated enquiries for the makers of different machines by retailers who have desired either to purchase them or to buy parts for repairing, we give for their use the following list, which is as complete as we can make it. If by accident the name of any machine is omitted we shall be pleased to give it in our next issue, if we are informed of our omission.

NAME OF MACHINE.	MANUFACTURER.	ADDRESS.	NAME OF MACHINE.	MANUFACTURER.	ADDRESS.
Agenoria	Royal Machine Co.....	Birmingham.	Nasch's Button-hole	Company's Depôt	248, High-holborn.
American Button-hole	T. L. Berridge.....	8, Gallowtree-gate	Machine Company	Gimson (Agent)	Aldermanbury.
		Leicester.	National (Button-hole)	American S.M. Co., ..	Rose-sreet, Newgate-
Anchor	Bradford & Co.	High Holborn, W.C	Nelson		street, E.C.
Boland (Fur Sewing)	Hobinstock Brothers,				
	(Agents)	48, Long-lane, E.C.	Neptune	Gibson & Co.	Ickneeld-street, Bir-
Bonnaz (Embroider-	Willcox & Gibbs, S.M.				mingham.
ing)	Company	150, Cheapside, E.C.	Original Princess ..	Grimme, Natalis & Co. }	37, Torrens-road,
Britannia	Britannia Manufactur-			Agent, C. Bradbury }	Brixton, S.W.
	ing Co.	Colchester.	Pearson Wax Thread	Pearson & Co.	Acorn-street, E.C.
Challenge	Royal Machine Co.....	Birmingham.	Peerless.....	White Sewing Machine	
Champion.....	C. Robinson & Co.	Kettering.		Company	Queen Victoria-st.
Concordia	Grimme, Natalis & Co. }	37, Torrens-road,	Phoenix	Baer & Rempell (Agent,	
	(Agent, C. Bradbury) }	Brixton, S.W.		C. Lohmann)	43, London-wall, E.C.
Countess	Gibson & Co.	Ickneeld-street, Bir-	Princess of Wales ..	St. George's Foundry Co.	Pope-st., Birmingham.
		mingham.	Raymond	P. Frank	11, Mount-pleasant,
Cyclops	Varley & Wolfenden ..	Keighley.			Liverpool.
Dolly Varden	Victoria S.M. Co.	15, Barbican, E.C.	Rotary Shuttle	Bradbury & Co.	Oldham.
Domestic	Gordon & Gotch.....	Bride-street, E.C.	Royal	Royal Machine Co.	Birmingham.
Elsa	Silberburg & Co. (Agent, }		Royal Gardner	Victoria Sewing Ma-	
	Bishop's Cluster Co.) }	Hamsell-street, E.C.		chine Company	Barbican.
Engenie.....	Royal Machine Co.....	Birmingham.	Ruby	Gibson & Co.	Ickneeld-street, Bir-
Express	G. E. Wright (Agent) ..	New Broad-st., E.C.			mingham.
Excelsior	G. Whight & Co.	Holborn Bars.	Sail and Sack Sewing	Kimball & Morton	Glasgow.
Fairy	Beal	Corn Mkrt., Halifax.	Seamstress	Sellers & Co.	Keighley.
Family Favorite	Foster (Agent)	Preston.	Shakespeare	Royal Machine Co.	Birmingham.
Family Hand	Kimball & Morton	Glasgow.	Silencieuse	Baer & Rempell (Agent, }	43, London-wall,
Gresham	Gresham & Craven....	Salford, Manchester.		C. Lohmann)	E.C.
Gritzner	Agent, Tester & Co. ..	Dr. Johnson-passage	Singer	Singer Manufacturing	
		Bull-st., Birmingham		Company	Foster Lane, E.C.
Harvey	E. Harvey	Bristol.	Standard	Rennick, Kemsley & Co.	4, Finsbury-cir. E.C.
Heberling	Senauer	Victoria-buildings,	Stitchwell	Sellers & Co.	Keighley.
		Chancery-lane, E.C.	Straw Hat Sewing Ma-		
Do.	J. Holroyd	Tomlinson-street,	chine Company ..	Willcox & Gibbs	150, Cheapside, E.C.
		Hulme, Manchester.	Do.	H. Wiseman	Luton.
Heron	Gresham & Craven....	Salford, Manchester.	Times	Royal Machine Co....	Birmingham.
Household	P. Frank	11, Mount-pleasant,	Vertical Feed	Vertidal Feed Sewing	
		Liverpool.		Machine Co.....	Queen Victoria-st.
Howe.....	Howe Sewing Machine		Victoria	Victoria S.M. Co.	15, Barbican, E.C.
	Company	Queen Victoria-st.	Victoria.....	Watson & Co.	Oldham.
Jones.....	Jones & Co., Limited..	Guide-bridge, Man-	Wanzer.....	Wanzer Sewing Machine	
		chester.		Company	Gt. Portland-st., W.
Langtry.....	G. E. Wright (Agent) ..	New Broad-st., E.C.	Ward, Arm&Platform..	E. Ward	Wells-street, Oxford
Little Europa	G. E. Wright	New Broad-st., E.C.			street, W.
Little Wanzer	Wanzer Sewing Machine		Wellington	Bradbury & Co., Lmtd.	Oldham.
	Company	Gt. Portland-st., W.	Wheeler & Wilson ..	Wheeler and Wilson	
Medium.....	J. Warwick	59, Hilton-st., Man-		Manufacturing Co. ..	Queen Victoria-st.
		chester.	White	White Sewing Machine	
Do.	C. Robinson & Co.	Kettering.		Company	Queen Victoria-st.
Do.	Kimball & Morton	Glasgow.	Whitney	— Riddlestorfes	153, Cheapside, EC.
Do.	Britannia Manufactur-		Willcox & Gibbs	Willcox & Gibbs Sewing	
	ing Company	Colchester.		Machine Co.....	Cheapside.
Do.	Pitt Bros.	Liversedge.	Windsor	Royal Machine Co.	Birmingham.
Mill Band.....	Pearson & Co.	Acorn-street, E.C.	Wiseman	John Holroyd	Tomlinson-street,
Morton	Kimball & Morton	Glasgow.			Hulme, Manchester.

BRASS AND ITS USES.

IT is an interesting fact that all the principal metals, with their amalgamations and alloys, have certain distinct and exclusive uses to which they are adapted, and for which no other metal can be substituted with as good results. The fact that for many uses one metal may be substituted for another to advantage does not change the other fact that there are certain adaptations and a certain fitness of things which give exclusive value to certain metals for certain uses. Thus, no matter how golden the age in which we live, the use of gold for fire-place fenders would be out of place, and not alone on account of its costliness. So the use of brass for personal ornament is equally unfitting.

Brass is mentioned in the earliest writings, although in many instances the word bronze would more correctly represent the character of the metal spoken of. Among the ancients, those who could not ornament with pure solid gold, seized that which looked the most like it, and answered, practically, the same purposes. Brass as an alloy will bear a variety of metals. Corinthian brass of the ancients combined in its make a proportion of gold and silver, as well as copper, tin, and other metals. Metallurgy is now so well understood that copper, zinc, tin, magnesia, sal-ammonia, crude tartar, and other chemicals, in the hands of practical artisans, may be so combined that a metal can be made which will not only look like gold, but take a finer finish and remain longer bright, whether in use or in a state of rest, than the purest gold of California! For this higher grade of brass there is an increasing demand for many purposes. First-class banking houses become resplendent when finished up with choice rolled, perforated, polished, and otherwise ornamented brass, according to the position it is to occupy in forming divisions of the departments. Such brass shields may be so finely finished that for months, with a very little daily care, they will remain as bright and beautiful as a newly-coined double eagle. For these good reasons perforated plate-brass is in demand for not only bank work, but in first-class offices of all kinds.

Then, however comfortable our best automatic furnaces, or soft and diffusive the warmth of our extra plated and ornamented base heaters, gentlemen who are finishing up fine dwellings for their own use, in which they expect to spend the greater proportion of their remaining days, like to retain the good old style of both their European and American ancestors, who sat before an open log fire or an open grate of coal! These, in every double parlour, under ample mantels, require not only grates of the most improved kind, but a variety of furniture, the ornamentation of which draws largely on the brassfounder and his most skilful and ingenious workers. These very beautiful brass-decorated open grates have proved to be extremely attractive to young children, and genius of a high order has been in demand to concentrate its best powers to furnish such a "fender" as shall prove a guard, not only for the uncertain steps of childhood, but for the influence which a strong current of air has over the apron and pinafore; for these articles also need a barrier to the attractive draught of a glowing fire of coals. These brass fenders admit of very great elaboration. While very beautiful as shields, they must neither hide the glowing coals nor obstruct their light or warmth. For these adjuncts of the open grate no metal has yet been discovered so good as brass; for while it reflects much warmth, it is not injuri-

ously affected, either in texture or polish, by an ordinary grate fire of coals. It is, therefore, an admirable metal for all stove and grate furniture or ornaments. Fenders, fire-irons, &c., in polished brass, with coal vases, fire-brasses, and dogs *en suite*, are in demand on both sides of the sea. A staple trade is done in polishing all-brass fenders and curbs, composed of reeded rails and spindles, alternating with *répoussé* or cast panels. A brass embossed Japanese fender in panels with bright steel bottom gives a pleasing effect. Pretty designs in Berlin black, relieved by buffing, supply cheaper goods. An effective fire-dog is a T-shaped tubular rest, with reeded base and knobs, and connecting scrolls in the Renaissance style. Another popular design is of tubular brass with cast supports in the Renaissance style, relieved by portions in gilding metal.

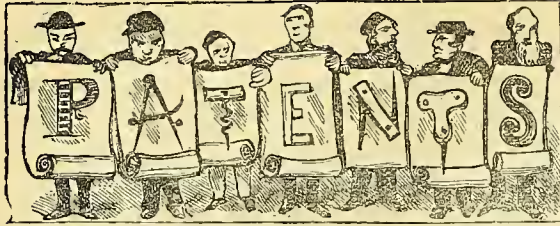
Among late and most beautiful tea and coffee urns may be seen those of brass. Mounted on a base or stand of the same metal, they are suspended on trunnions—similar to the latest style of ice pitchers—or hinged to their base they tip easily, and pour their contents with scarcely a perceptible effort on the part of the waiter. These goods are both exceedingly attractive and useful.

The tendency in carriage, railway coach, and, indeed, in house furniture generally, is in the same direction. Butts, hinges, door knobs for passenger cars, have for some time been of bronze, as have been the hand-bag racks in the finest passenger car coaches; but fine brass wire or perforated rolls are now preferred on account of superior brightness and beauty. And for drawer knobs brass "half shell" handles are—by all who use drawers—greatly preferred, both for beauty and convenience.

These are but a few of the tendencies of the times which indicate a wiser and more extensive use of fine brass than heretofore. Time and space would fail to give merely a synopsis of its uses in the arts; its necessity to the machinist, especially machinery of the finest kinds, clocks, watches, chronometers, and philosophical instruments of all kinds; its adaptableness for lamps, chandeliers, gasfittings, meters, and all kinds of scales. In proportion, therefore, as a people advance towards the highest kind of knowledge—that of best adapting means to ends—will there be an increasing demand for brass in machinery, in scientific instruments, and in all efforts to give permanent ornamentation which shall be excelled only by pure gold.

FAILURE OF THE BOSTON SEWING MACHINE COMPANY.

ACCORDING to the daily *Sun*, the Boston Sewing Machine and Cabinet Company has failed. The company formerly manufactured its cases in New York, but sold out the machinery and removed to Boston, changing the name, which had formerly been the Manhattan Cabinet Manufacturing Company. The stock of the company was originally \$100,000, but was increased to \$500,000, of which \$245,000 was held by the Ames family. It is said \$150,000 cash was invested in the business. The failure is the result of the failure of J. F. Paul & Co., lumber dealers; Mr. Paul being one of the stockholders. Of the directors, George S. Richards is the Treasurer of the Standard Oil Company, and F. Flint is of the firm of W. R. Grace & Co., New York.



The following list has been compiled expressly for this Journal, by Mr. G. F. Redfern, Patent Agent, of 4, South Street, Finsbury, London, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 3943. T. Crookes, of Sheffield, Cutlery Manufacturer, for improvements in sporting and other pocket knives. Dated August 14, 1883.
- „ 3955. E. Stillwell and A. Stillwell, both of Old-street, London, Weighing Machine Manufacturers, for improvements in postal and other weighing machines. Dated August 15, 1883.
- „ 3964. P. Jensen—a communication from F. Kohl, of Vienna, for improvements in kitchen stove-plates. Dated August 15, 1883.
- „ 3978. R. D. Sanders, of Glasgow, for improvements in lock-nuts. Dated August 16, 1883.
- „ 3991. W. S. Simpson, of Battersea Park-road, London, and J. W. Phillips, of 30, Walbrook, London, for an improvement connected with the frames or backbones of bicycles. Dated August 17, 1883.
- „ 3992. H. E. A. Wallis, of 86, Farringdon-street, London, Gas Engineer, for improvements in gas or lamp shades, and in supports for same. Dated August 17, 1883.
- „ 3997. T. Causnett, of Birmingham, Tool Maker, for improvements in terminal ornaments or mounts for pillars of metallic bedsteads, cots, and other articles of metallic furniture, and in the method of producing parts of the same. Dated August 17, 1883.
- „ 4050. H. J. Haddan—a communication from H. E. Fuller and E. C. Bramhall, both of Washington, United States, for improvements in augers and bits. Dated August 21, 1883.
- „ 4064. G. Sykes, of Ashton-under-Lyne, Lancashire, for improvements in the construction of spring punches. Dated August 22, 1883.
- „ 4069. A. C. Henderson—a communication from W. Banerle, Civil Engineer, of Augsburg, Bavaria, Germany, for improvements in the construction of bicycles. Dated August 22, 1883.
- „ 4090. H. H. Lake—a communication from J. J. A. Larroque, of Paris, Colonel, for improvements in velocipedes. Dated August 23, 1883.
- „ 4092. J. Orme, of Barbican, London, for improvements in and appertaining to safety bicycles, tricycles, and other velocipedes. Dated August 23, 1883.
- „ 4115. A. J. Hurtu, of Paris, Mechanician, for improvements in sewing machines. Dated August 25, 1883.
- „ 4117. H. Fletcher, of Jeffrey's-road, Clapham, London, and F. J. Clarke, of Ashburnham-road, Chelsea, London, for improvements in machinery or apparatus for washing plates. Dated August 25, 1883.
- „ 4119. J. Heap, of Ashton-under-Lyne, Lancashire, Machine Tool Maker, for improvements in files, and in the method of cutting the same. Dated August 25, 1883.
- „ 4124. C. Pollak, of 54, Wool Exchange, Coleman-street, London, for improvements in tricycles. Dated August 27, 1883.
- No. 4126. H. J. Newport, of Beer-lane, London, for an improved device for the beating or mixing of eggs, batter, and similar matter. Dated August 27, 1883.
- „ 4129. A. F. Martens, of Hamburg, Germany, for improvements in wardrobe safety locks for securing suspended wearing apparel. Dated August 27, 1883.
- „ 4131. C. A. Allison—a communication from G. W. Cottingham, of Louisville, Kentucky, United States, for improvements in ironing machines. Dated August 27, 1883.
- „ 4147. A. C. Henderson—a communication from E. Essers, of Viersen, Germany, for improvements in winding and reeling machines. Dated August 28, 1883.
- „ 4149. M. Steel, of Gosforth, Northumberland, Plumber and Gasfitter, for improvements in apparatus for heating water. Dated August 28, 1883.
- „ 4150. G. Connell, of Newcastle-upon-Tyne, Building Surveyor, for improvements in window ventilators. Dated August 28, 1883.
- „ 4155. G. Singer, of Coventry, Bicycle and Tricycle Manufacturer, for improvements in tricycles. Dated August 28, 1883.
- „ 4156. E. Edwards—a communication from P. Gillaut, of Morialmé, Belgium, for an improved apparatus for holding lucifer matches, and for withdrawing such matches singly as required. Dated August 28, 1883.
- „ 4157. J. F. Smith, of Leicester, Architect and Civil Engineer, for improvements in velocipedes, tricycles and other manumotors. Dated August 28, 1883.
- „ 4159. H. Grellier, of York Villas, Brixton, London, for improvements in sewing machines. Dated August 28, 1883.
- „ 4169. J. Watkins, of Havelock Road, Saltley, Birmingham, Engineer, for improvements in bicycles. Dated August 29, 1883.
- „ 4172. J. Cunningham, of Bristol, Auctioneer, for improvements in apparatus for feeding young dogs and other young animals. Dated August 29, 1883.
- „ 4176. J. Matthews, of Sheffield, for an improved construction of tool for spoke shaving or similar uses. Dated August 29, 1883.
- „ 4190. E. Weidlich and H. Mitchell, both of Watling Street, London, for an improved attachment to tricycles and other velocipedes. Dated August 30, 1883.
- „ 4195. W. R. Lake—a communication from La Société, A Trélat et Cie., of Paris, for improved methods or processes for colouring metals or alloys. Dated August 30, 1883.
- „ 4200. J. Derry, of Aston, Warwickshire, Tool Maker, for improvements in balance gear for tricycles and similar machines. Dated August 31, 1883.
- „ 4202. J. M. Cryer, and W. O. Matteson, of the firm of Howarth, Cryer and Company, of Lodge Bank Iron Works, Bolton, Lancashire, Engineers, Millwrights, and Machinists, for improvements in machinery for wringing, mangling and calendering or finishing lace, calico, and other like fabrics, which are also applicable to machines for calendering paper. Dated August 31, 1883.
- „ 4213. S. B. Sutcliffe, of Manchester, for improvements in tile hearths and in fenders for fire-places. Dated September 1, 1883.
- „ 4215. W. A. F. Weighorst, of Hamburg, Germany, for improvements in baking-ovens. Dated September 1, 1883.
- „ 4217. J. Ford, of the firm of Thomas Ford and Company, of Birmingham, Manufacturers, for improvements in gaseliers, gas brackets, and other gas lamps. Dated September 1, 1883.

- No. 4218. S. Siddaway, of West Bromwich, Staffordshire, Iron-founder, and A. E. W. Clayton, of West Bromwich, aforesaid, Steel Worker, for improvements in sad irons, box irons, and other smoothing irons. Dated September 1, 1883.
- „ 4222. S. J. Tucker, of Liverpool, for improvements in velocipedes of the bicycle type, that is with driving wheel between the cranks, and in wheels applicable to such velocipedes. Dated September 1, 1883.
- „ 4236. D. Carter, of Stratford-on-Avon, Warwickshire, Tricycle Maker, for improvements in driving-gear applicable to velocipedes and other vehicles. Dated September 3, 1883.
- „ 4246. A. M. Clark—a communication from Messieurs Gollet Frères, of Paris, Manufacturers, for improvements in mortise and other latch locks. Dated September 3, 1883.
- „ 4249. P. Borck, of Liverpool, Engraver, for improvements in hair combs and in means and apparatus for the manufacture of the same. Dated September 4, 1883.
- „ 4250. J. Ferguson, of Bowdon, Cheshire, for improvements in the construction of velocipedes. Dated September 4, 1883.
- „ 4259. R. Adams, of 7, Great Dover Street, London, for improvements in the construction of toothed racks for opening and closing fanlights, windows, skylights, ventilators, and analogous and other useful purposes. Dated September 4, 1883.
- „ 4261. B. S. Harrison, of the firm of J. Harrison and Sons, of Dronfield, Derbyshire, Edge Tool Manufacturers, for an improved hoe, part of which invention is also applicable to rakes. Dated September 4, 1883.
- „ 4267. T. O'Brien, of New York, United States, for improvements in velocipedes and tricycles. Dated September 5, 1883.
- „ 4280. F. Kinder, of Cottenham, Cambridgeshire, for improvements in hoes for tilling land or the like. Dated September 6, 1883.
- „ 4284. F. Fletcher, of Warrington, Lancashire, for improvements in or applicable to gas burners for boiling, grilling, toasting, and other similar purposes. Dated September 6, 1883.
- „ 4286. W. Lawrence, of St. Mary Axe, London, for improvements in stainers or perforated surfaces. Dated September 6, 1883.
- „ 4305. W. Van Praagh, of Fitzroy-square, London, Gentleman for improvements in apparatus for cleaning windows, walls, and other objects. Dated September 7, 1883.
- „ 4306. J. Pasfield, of Sedgley, Staffordshire, Colliery Agent, for improvements in the treadle mechanism of sewing and other machines. Dated September 7, 1883.
- „ 4311. W. A. Barlow, a communication from H. E. Fontaine, of Paris, for new and improved machinery for the manufacture of needles. Dated September 7, 1883.
- „ 4313. C. Lee, of Tottenham, Middlesex, for improvements in tricycles. Dated September 7, 1883.
- „ 4316. F. R. Baker, of Birmingham, Engineer, for an improvement or improvements in lamps. Dated September 8, 1883.
- „ 4318. M. F. Perry, of West Hartlepool, Durham, for a new or improved burner for combustion of liquid hydrocarbons. Dated September 8, 1883.
- „ 4326. W. A. Todd, of Stamford, Lincolnshire, Gentleman, for improvements in the construction of taps for drawing beer and other liquids, and appliances used in connection therewith. Dated September 8, 1883.
- No. 4330. S. Child, of 40, Caledonian-road, Brighton, Builder, for beating carpets. Dated September 10, 1883.
- „ 4338. C. A. Allison, a communication from C. F. Walde, Civil Engineer, of New York, United States, for improvements in velocipedes, parts of which are applicable to other vehicles. Dated September 11, 1883.
- „ 4341. J. Hinks, of Birmingham, Manufacturer, for improvements in lamps for burning light or volatile oils. Dated September 11, 1883.
- „ 4342. B. J. B. Mills, a communication from Monsieur Veaux-Ducruit, of Beaujeu, in the department of the Rhône, France, for improvements in domestic heating apparatus. Dated September 11, 1883.
- „ 4352. R. Kearsley, of Manchester, for improvements in the india rubber and metal tyres of the wheels of carriages and other vehicles, applicable also to other wheels. Dated September 11, 1883.
- „ 4358. R. H. Perks and J. Morley, trading as William Perks and Company, of Birmingham, Manufacturers, for improvements in spring or self-closing taps or stop-cocks. Dated September 12, 1883.
- „ 4367. T. Thorp, of Whitefield, Lancashire, Architect, for an improved governor for regulating the flow of gas to burners. Dated September 12, 1883.
- „ 4368. T. Brooke and J. Brooke, both of Sheffield, for improvements in cases for table cutlery and other similar articles. Dated September 12, 1883.
- „ 4376. F. Beauchamp, of Edmonton, Middlesex, for improvements in bicycles, tricycles, velocipedes, and other such like vehicles or carriages, parts of which are also applicable to other purposes. Dated September 13, 1883.
- „ 4380. C. H. Robinson, of Glasgow, Architect, for improvements in gas stoves. Dated September 13, 1883.
- „ 4384. E. J. Smith, of Gray's-inn-road, London, for improvements in locks or fastenings. Dated September 13, 1883.
- „ 4385. A. Barham, of Anerley, Surrey, for improvements in velocipedes. Dated September 13, 1883.
- „ 4392. W. Davison, of Gracechurch-buildings, Gracechurch-street, London, for improvements in barrel or tower bolts and bolts of a similar character, part of which improvements is applicable also to the bolts of locks. Dated September 13, 1883.

Letters Patent have been issued for the following:—

- No. 796. W. J. Spurrier, of Birmingham, for certain improvements in the construction and arrangement of parts of velocipedes, applicable to other analogous purposes. Dated February 13, 1883.
- „ 971. T. H. Collins, of Winchester, Hampshire, for improvements in and connected with window fasteners. Dated February 22, 1883.
- „ 1009. J. Warwick, of 59, Hilton-street, Manchester, Sewing Machine Manufacturer, for improvements in sewing machines, applicable also to other machinery. Dated February 24, 1883.
- „ 1029. J. Brown, of Sheffield, for improvements in the construction and manufacture of hoops or sockets for securing picks and other similar tools to their shafts and in appliances connected therewith. Dated February 26, 1883.
- „ 1064. W. Brierley, a communication from R. Tungler, of Goerlitz, Prussia, for improvements in apparatus for heating air for warming buildings and other uses. Dated February 27, 1883.
- „ 1129. J. D. Ellson, of Coventry, for an improvement in velocipedes. Dated March 2, 1883.

- No. 1153. A. Varah, of Sheffield, for improvements in attaching door-knobs to their spindles. Dated March 3, 1883.
- „ 1162. J. H. Adams, of 34, Fullerton-road, Wandsworth, London, for improvements in bicycles, part of which are applicable to other purposes. Dated March 5, 1883.
- „ 1183. J. Collett, of Olton, Warwickshire, Commercial Traveller, for an improvement or improvements in the joints of perambulator and carriage-hoods. Dated March 5, 1883.
- „ 1283. C. Neil, of Sheffield, for improvements in adjustable spanners. Dated March 10, 1883.
- „ 1297. W. Ashton, of Manchester, for improvements in the construction of braiding machines. Dated March 12, 1883.
- „ 1299. F. MacDonald Robertson and J. E. Cousté, both of Greek-street, Soho, London, for improvements in cases or holders for cigars, cigarettes, needles, pins, lucifers, and such like articles. Dated March 12, 1883.
- „ 1302. R. Whiston, of Wolverhampton, Staffordshire, Architect, for improvements in fastenings for doors, windows, and shutters. Dated March 12, 1883.
- „ 1373. A. J. Boulton—a communication from P. Géoffroy-Gomez, of Toulouse, France, for improvements in gas stoves. Dated March 14, 1883.
- „ 1379. T. West, of the Bromley Engine Works, Devon's-road, Bromley-by-Bow, London, Engineer, for an improved emery wheel for grinding, polishing and decorticating. Dated March 15, 1883.
- „ 1387. W. H. Brassington, of Manchester, Perambulator Manufacturer, for improvements in perambulators. Dated March 16, 1883.
- „ 1391. E. R. Wethered, of Woolwich, London, for improvements in latches, locks, and lock furniture. Dated March 15, 1883.
- „ 1421. W. T. Sugg, of Vincent-street, Westminster, London, Engineer, for improvements in gas stoves. Dated March 17, 1883.
- „ 1449. B. J. B. Mills—a communication from H. Schmidt, of Berlin, for a new or improved ironing machine. Dated March 19, 1883.
- „ 1459. T. H. Ash, of Birmingham, Manufacturer, for improvements in the manufacture of metallic foot warmers. Dated March 20, 1883.
- „ 1477. F. J. Drewry—a communication from J. A. Dodge, of Somerville, and G. R. Marble, of Boston, both in the state of Massachusetts, United States, for improvements in wrenches or spanners for nuts, bolts, or pipes. Dated March 21, 1883.
- „ 1558. E. Gilbert and A. E. Gilbert, both of Dundee, Forfarshire, for improvements in lock nuts. Dated March 27, 1883.
- „ 1585. W. P. Thompson—a communication from C. Launay, of Paris, for improvements in heating apparatus for domestic, hotel, and other use. Dated March 29, 1883.
- „ 1594. A. Chamberlain, Manufacturer, and G. Hookham, Manufacturer, both of Birmingham, for improvements in oil lamps. Dated March 29, 1883.
- „ 1790. H. J. Haddon—a communication from J. Fleischer, of Cologne, Germany, for an improved gas regulator. Dated April 9, 1883.
- „ 1900. V. Milward, of the firm of Henry Milward and Sons, of Redditch, Worcestershire, Needle and Fish Hook Manufacturer, for improvements in the method of and in apparatus for tempering sewing and sewing machine needles, fish hooks, steel pens, and other small articles made of steel. Dated April 14, 1883.
- „ 1977. B. Goulton, of Kaco Wangaroa, Mongonui, Auckland, New Zealand, for a self-adjusting saw handle. Dated April 19, 1883.
- No. 2121. A. M. Clark—a communication from G. F. Fisher, of St. John, New Brunswick, Canada, for improvements in lanterns. Dated April 26, 1883.
- „ 2133. J. C. Mewburn—a communication from J. M. Burnichon, of Paris, for a machine for peeling potatoes or other articles. Dated April 27, 1883.
- „ 2157. E. Quadling, of Forest Hill, London, for a new or improved longitudinal joint or seam for sheet or plate metal pipes and fittings, and machinery for manufacturing pipes with such new or improved longitudinal joints or seams. Dated April 28, 1883.
- „ 2638. H. J. G. Hallström, Engineer, of Köping, Sweden, for improvement of screws for wood, or what is commonly called "wood screws." Dated May 28, 1883.
- „ 2698. J. Waple, of Brixton, London, for improvements in chimney tops or ventilators. Dated May 30, 1883.
- „ 2765. P. Jensen—a communication from F. von Callenberg and E. Fischer, both of Teplitz, Bohemia, for improvements in fire-places for steam boilers, kilns, furnaces, stoves, and other evaporating, smelting, drying, roasting and heating apparatus. Dated June 4, 1883.
- „ 2853. C. D. Abel—a communication from W. Lorenz, of Carlsruhe, Baden, Germany, for improvements in the manufacture of metal handles for knives, forks, and other instruments. Dated June 7, 1883.
- „ 3300. W. R. Lake—a communication from C. Mace, of Philadelphia, Pennsylvania, United States, for improvements in apparatus and machinery for use in the manufacture of springs. Dated July 3, 1883.
- „ 3473. A. M. Clark—a communication from E. F. Peyre, of Paris, for improvements in apparatus for dyeing the seams of gloves, applicable to glove sewing machines. Dated July 13, 1883.
- „ 3506. J. W. Post, of New York, United States, for improvements in sewing machines. Dated July 17, 1883.
- „ 3509. R. H. Brandon—a communication from J. Becker, of Boston, Massachusetts, United States, for improvements in embroidering machines. Dated July 17, 1883.

PATENTS WHICH HAVE BECOME VOID :—

- No. 3203. T. Fletcher, F.C.S., of Warrington, Lancashire, for improvements in gas-burners for heating purposes. Dated August 5, 1880.
- „ 3204. J. Chorlton, of Manchester, for improvements in cooking stoves and in appliances connected therewith for heating water for baths and similar purposes. Dated August 5, 1880.
- „ 3272. W. H. Nevill, of Ferryside, Carmarthenshire, for improvements in the method of and apparatus for re-working iron shearings produced in the manufacture of sheet iron for tin plates and for other purposes. Dated August 10, 1880.
- „ 3279. F. A. Harrison, Manufacturer, and C. Priestland, Tool Maker, both of Birmingham, for improvements in pulleys for the cords of window and other blinds, maps, and other articles. Dated August 11, 1880.
- „ 3312. H. L. Russell, of Bloomington, Illinois, United States, for improvements in registering padlocks and keys for use therewith. Dated August 14, 1880.
- „ 3315. W. R. Lake—a communication from the Erste Oester reichische Thueren Fenster und Fussboeden Fabriksgesellschaft, of Vienna, for improvements in

- spring mattresses or bed bottoms and in bedsteads. Dated August 14, 1880.
- No. 3347. W. R. Bull, of Angell-road, London,—partly a communication from H. F. Kimber, of St. John's-road, London, now residing at Solnhofen, Germany, for improved apparatus for carrying luggage on a bicycle or similar vehicle. Dated August 18, 1880.
- „ 3363. F. H. F. Engel—a communication from E. Schultz, Mechanic, and R. Wulff, British Vice-Consul, Merchant, both of Aarhus, Denmark, for improvements in burners and in apparatus for burning petroleum. Dated August 19, 1880.
- „ 3395. T. G. S. McCarthy, of Knightsbridge, London, and A. Shakespear, of Nassau-street, London, for improvements in apparatus for cleaning and polishing boots, shoes, and other articles. Dated August 20, 1880.
- „ 3406. A. Sweet, of 102, Hampstead-road, London, Ironmonger, for improvements in valves known as of the screw-down kind. Dated August 23, 1880.
- „ 3425. F. L. Lawrence—a communication from A. Camille, of Paris, for an improvement in the manufacture of hair brushes. Dated August 24, 1880.
- „ 3436. W. R. Lake—a communication from J. H. Shedd, of Providence, Rhode Island, United States, for improvements in fluid meters. Dated August 24, 1880.
- „ 3451. R. J. Sankey, of Margate, for improvements in traps for birds or other animals. Dated August 26, 1880.
- „ 3458. W. Clark—a communication from A. Atkinson, of Winterset, Madison, Iowa, United States, for an improved combined clothes washer and wringer. Dated August 26, 1880.
- „ 3498. H. W. Perrers, of 13, Downshire-hill, Hampstead, London, Surveyor, for improvements in iron grills for protecting shop fronts and in the method of mounting, fixing, and packing them away. Dated August 28, 1880.
- „ 3499. W. C. Hughes, of Hoxton-street, London, for improvements in lamps and apparatus connected therewith, specially useful for magic lanterns and dissolving views. Dated August 28, 1880.
- „ 3524. J. Beresford, of Altrincham, Cheshire, for an improved combination of machinery and apparatus for cleaning and polishing silver or other metal, and knives, forks, and other articles of domestic use; applicable also as a motor for operating, mincing, grinding, and other similar machines. Dated August 31, 1880.
- „ 3530. F. Hart, of 52, Queen Victoria-street, London, for improvements in steam heating apparatus. Dated August 31, 1880.
- „ 3551. L. W. Leeds, of Parliament-street, Westminster, London, Heating and Ventilating Engineer, for improvements in heating apparatus. Dated September 1, 1880.
- „ 3598. C. D. Abel—a communication from La Société Clement et Cie, of Paris, an incorporated company, for improvements in bicycles and tricycles. Dated September 4, 1880.
- „ 3138. St. G. L. Fox, of Sussex-place, Onslow-gardens, London, Gentleman, for improvements in the means or apparatus for lighting and extinguishing gas lamps by electricity. Dated August 8, 1876.
- „ 3265. W. R. Lake—a communication from S. Gilzinger, of Rondout, New York, United States, for improvements in velocipedes. Dated August 19, 1876.
- „ 3288. J. Wilding, of Melbourne, Victoria, now of Bolton,

Lancashire, for improvements in the construction of washing machines. Dated August 22, 1876.

- No. 3344. James Cutlan—a communication from John Cutlan, of Philadelphia, United States, for improvements in the construction of sewing machines for boots and shoes. Dated August 25, 1876.

SPECIFICATIONS PUBLISHED DURING THE MONTH.

Postage 1d. each extra.

1882.

				s.	d.
No. 5863.	J. Pallweber, watch or clock	0	6		
„ 5905.	E. de Pass, tricycle	0	2		
„ 6028.	W. H. Jones, fastenings for trunks, boxes, &c. .. .	0	2		
„ 6032.	A. Tomkins, apparatus for shielding velocipedists from inclemency of the weather .. .	0	4		
„ 6035.	G. T. Ball, window fasteners	0	2		
„ 6048.	J. H. Johnson, machines for sewing straw plaits or braids or other material in strips into hats or other articles	0	8		
„ 6094.	S. Lee and M. Stodart, double-driving tricycles, &c. .. .	0	2		
„ 6098.	B. J. B. Mills, sewing machines	0	6		
„ 6108.	R. C. Fletcher, velocipedes	0	6		
„ 6109.	W. A. Crommelin, J. Lees, H. Spain, and W. H. Thompson, ovens heated by gas	0	6		
„ 6119.	Annis Goodchild Hewitt, dish covers	0	2		
„ 6122.	W. T. Sugg, gas fires and means for ensuring the proper carrying off of the products of combustion	0	8		
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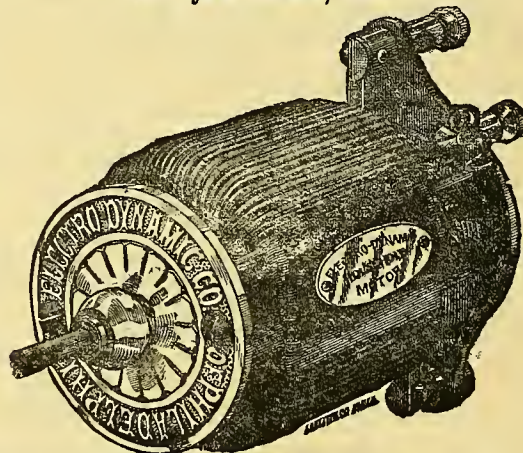
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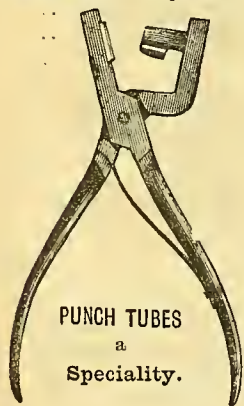
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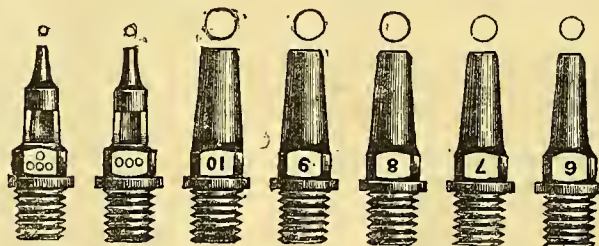


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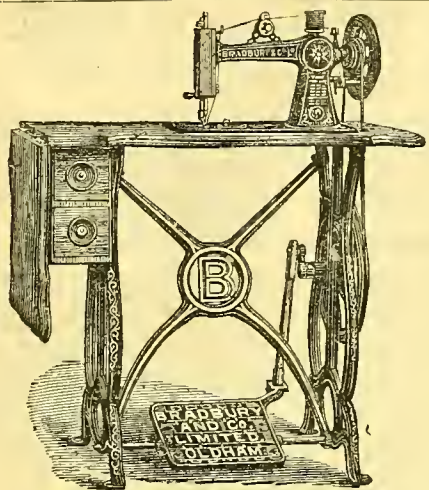
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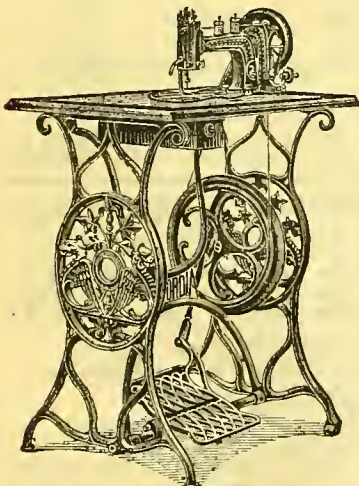
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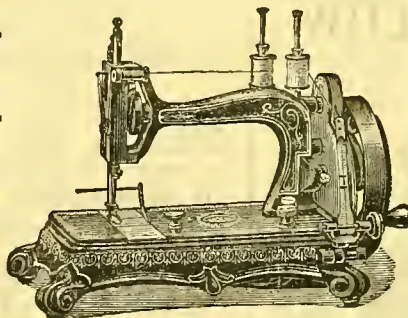
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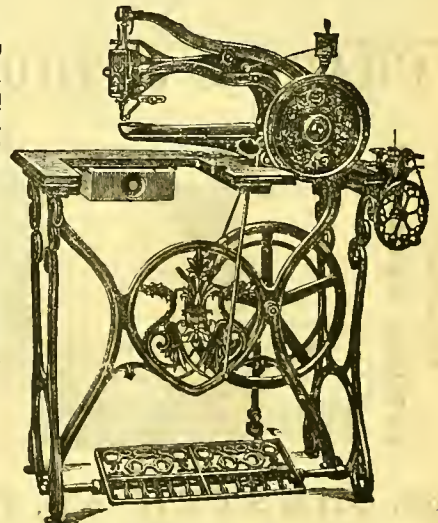
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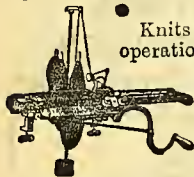
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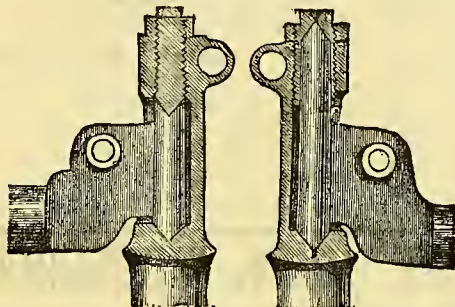
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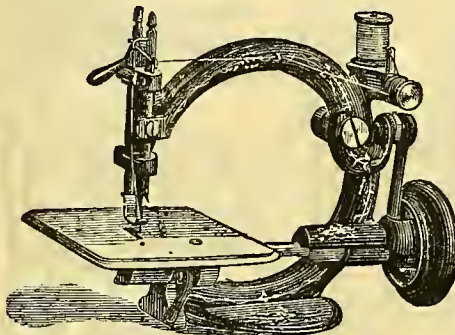
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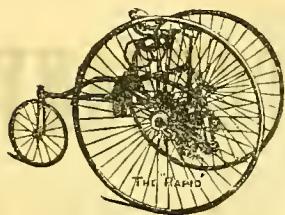
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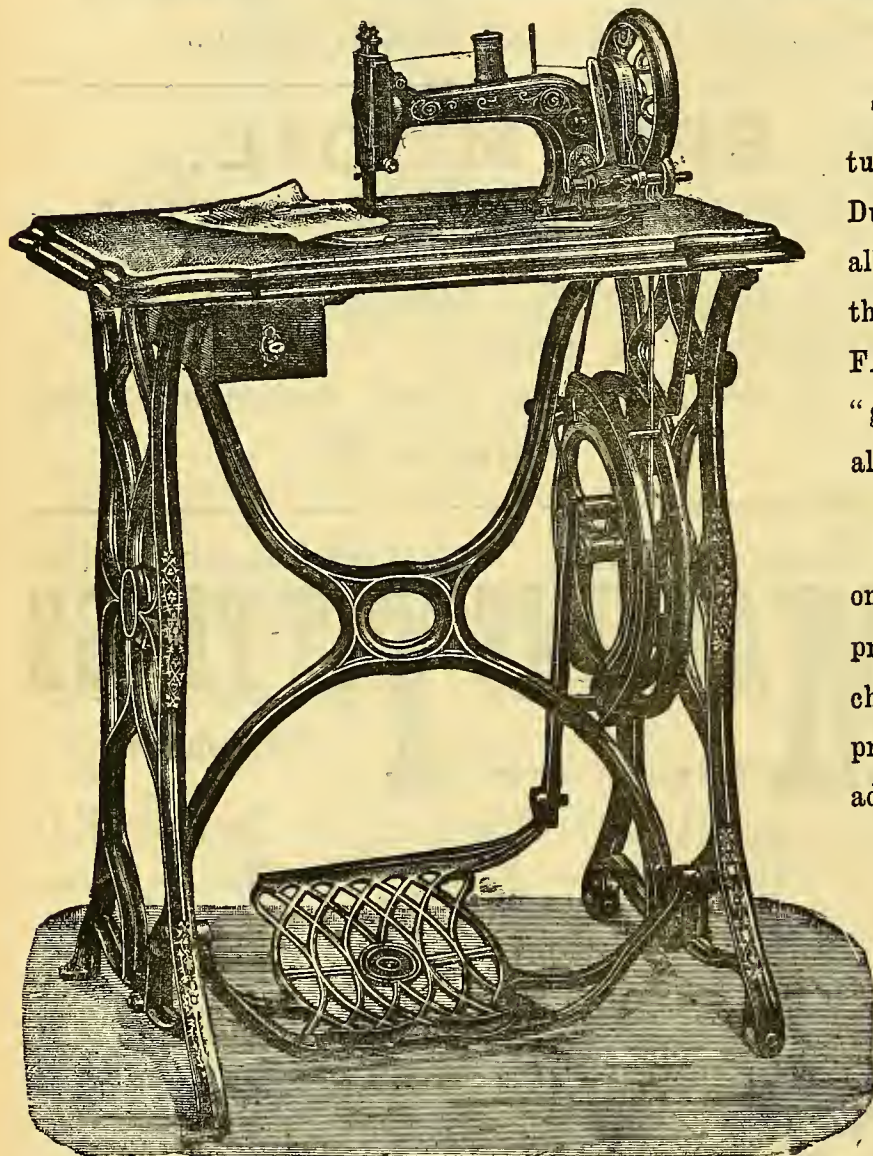
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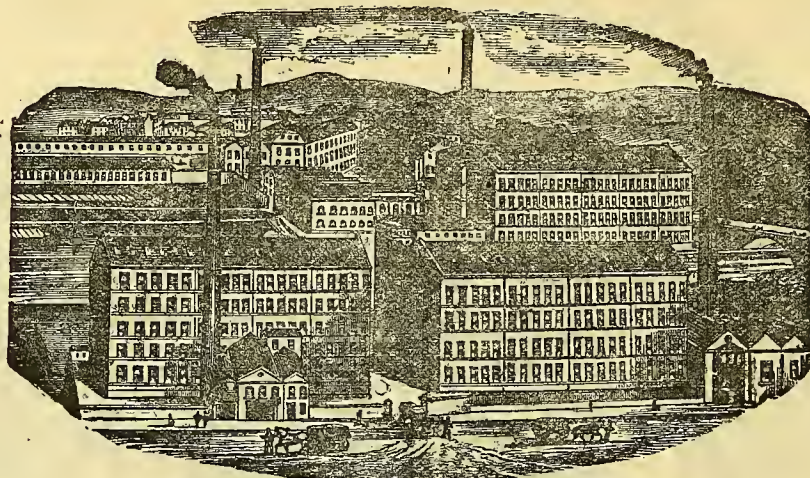
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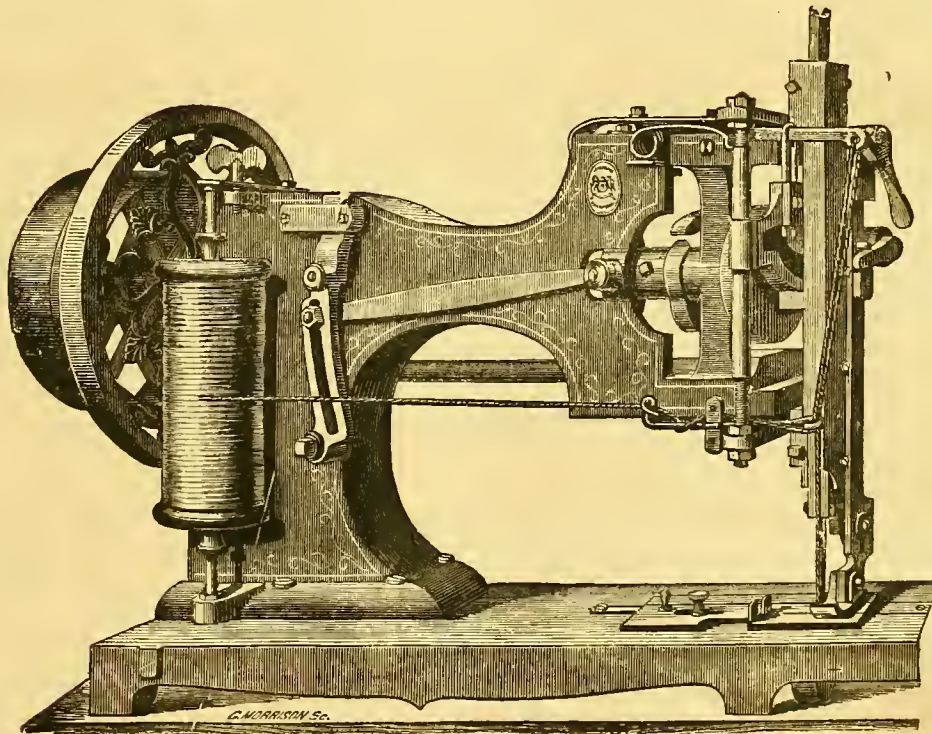
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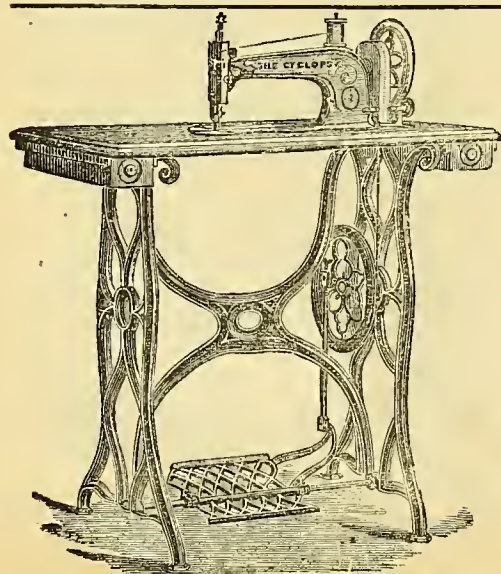
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is the only Reliable Circular Ribber in the Market, and only Machine which can Fashion a Ribbed Circular Stocking. It is quicker, more simple, and more durable than any other Machine of the kind. The Trade and the Public are cautioned not to buy machines which infringe these Patents.

KNITTING MACHINE TESTIMONIALS

GOLD MEDAL, NEW ZEALAND EXHIBITION, 1882.

Greenwich Hospital Schools, Jan. 11th, 1881.

We have much pleasure in bearing testimony to the excellency of your Knitting Machines. The whole of the socks for 1,000 boys are knitted at the School and these machines have been in constant use for eighteen months. They are easily understood by the boys, and turn out capital socks. The Ribbing Attachment is a great improvement to the machine. We have found them to work very satisfactorily.

(Signed) E. M. ROE.
CHAS. BURNE Y.

Royal Military Asylum, Chelsea, London, Jan. 7, 1881. Having had three years experience with your sock Knitting Machines, I cannot speak too highly of them both with and without the Ribbing Attachment. They give every satisfaction, and, considering they are worked here entirely by boys, they keep in most excellent order.

(Signed) W. MACDONNELL,
Quartermaster.

The Workhouse, Great Yarmouth, January 8th, 1881.

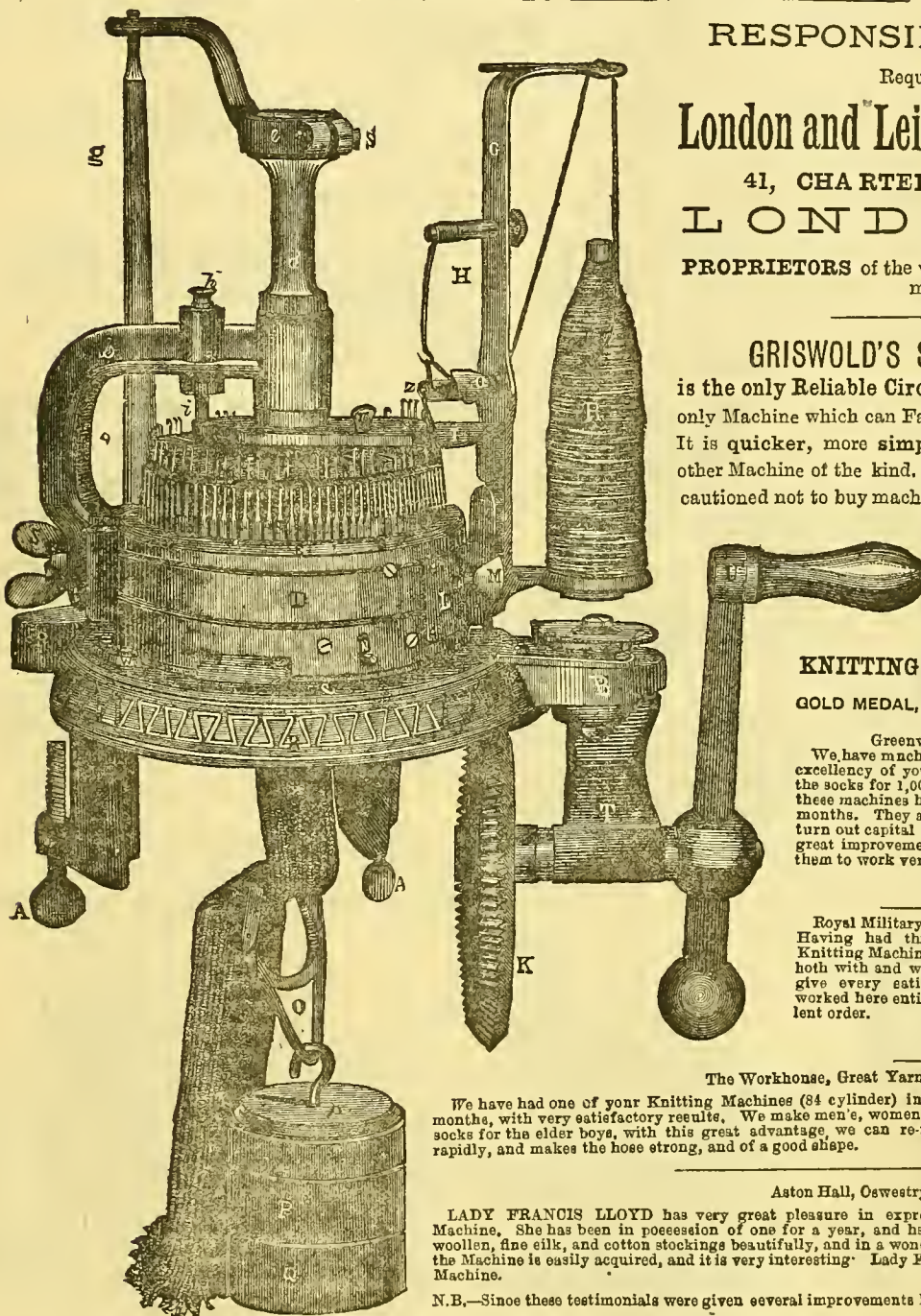
We have had one of your Knitting Machines (84 cylinder) in use in our workroom about twelve months, with very satisfactory results. We make men's, women's, and girls' cotton ribbed Hose, also socks for the elder boys, with this great advantage, we can re-foot them when necessary. It works rapidly, and makes the hose strong, and of a good shape.

(Signed) E. S. BLYTH, Matron.

Aston Hall, Oswestry, January 7th, 1881:

LADY FRANCIS LLOYD has very great pleasure in expressing her approval of the Knitting Machine. She has been in possession of one for a year, and has used it constantly. It knits both woollen, fine silk, and cotton stockings beautifully, and in a wonderfully short time. The working of the Machine is easily acquired, and it is very interesting. Lady Francis Lloyd considers it a very useful Machine.

N.B.—Since these testimonials were given several improvements have been made.



An Inspection of Machines at work and of the goods they produce is invited.

WRITE FOR PRICE LIST AND TESTIMONIALS.

THE WHITE SEWING MACHINE COMPANY.

MANUFACTORY:

Cleveland, Ohio, United States of America.

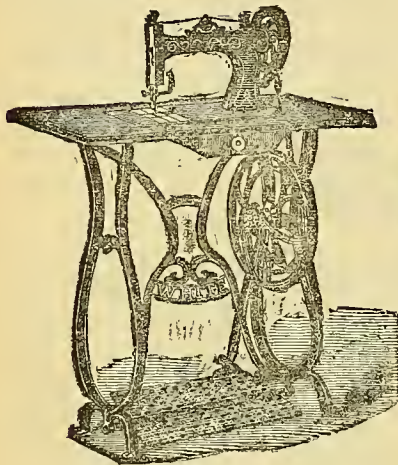
PRINCIPAL EUROPEAN OFFICE:

19, QUEEN VICTORIA ST., LONDON, E.C.

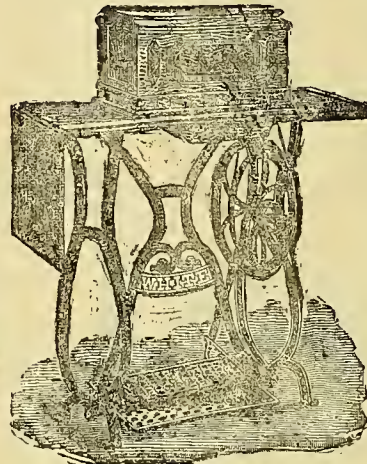
Manufacturers of the justly Celebrated

WHITE SEWING MACHINES.

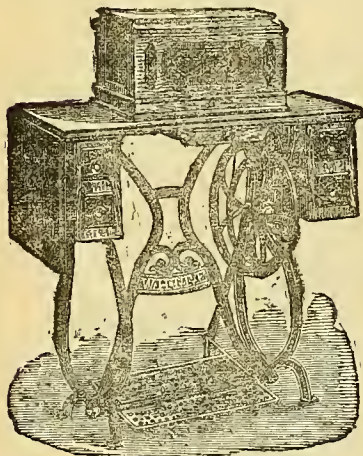
THE POPULAR FAVORITES FOR NOISELESSNESS AND EASY TREADLE MOVEMENT.



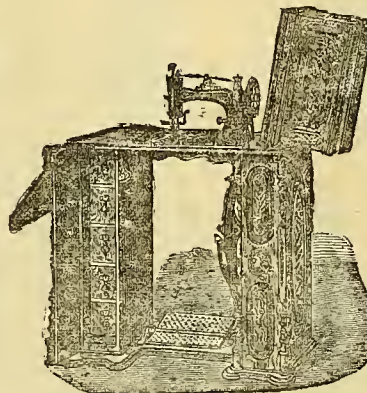
STYLE No. 1.



STYLE No. 6.



STYLE No. 8.



STYLE No. 9.

SUPERLATIVE

Machines for
all work.
12 various
styles.

IN
THEIR

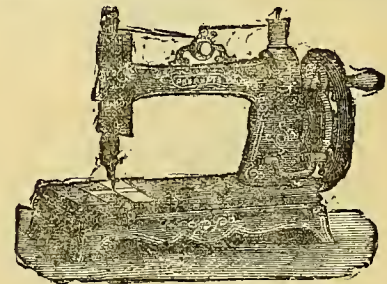
Every Machine
Warranted for
5 years. Legal
Guarantee.

ATTRIBUTES.

It is the Finest Finished and Best
Made Machine in the World.

It is the Easiest-Selling and Best-
Satisfying Machine ever Produced.

The "PEERLESS"
Hand Shuttle Sewing Machines.



Price £4 0 0

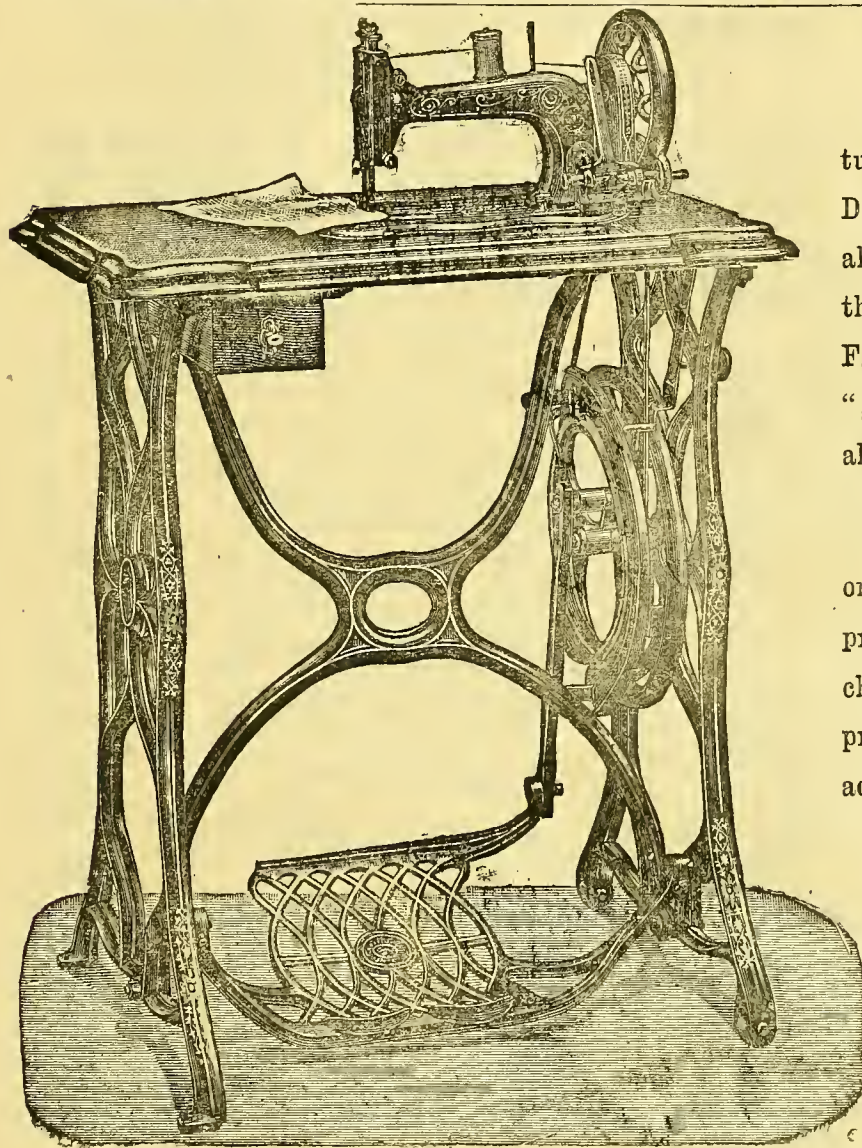
LIBERAL TERMS TO RESPONSIBLE DEALERS
AND AGENTS.

All Sewing Machine Agents, Dealers, and Operators are invited to call and inspect this—the latest Improved and Best Silent Lock-Stitch Shuttle Sewing Machine—or send for Pamphlets, Circulars, &c., to

WHITE SEWING MACHINE COMPANY,

19, Queen Victoria Street, London, E.C.

JOHN TESTER & Co.
(MANUFACTURERS' AGENTS),
SOLE WHOLESALE AGENTS FOR THE
GRITZNER MANUFACTURING COMPANY
IN GREAT BRITAIN AND THE COLONIES.
SEWING MACHINES!
HAND OR TREADLE—DOMESTIC & MANUFACTURING.



The Sewing Machines manufactured by Messrs. Gritzner & Co., of Durlach, have won Prize Medals at all the principal Exhibitions during the past 5 years; but what is of FAR MORE VALUE, they have won "golden opinions" from Agents in all parts of the World.

The Machines are constructed on the most approved scientific principles—all the parts are interchangeable. Valuable patented improvements have been recently added.

Special advantages are offered to Agents, and every facility is given to enable large Buyers to do a profitable and satisfactory trade.

NOTE THE ADDRESS—

**JOHN TESTER & Co., 10 & 12, Dr. Johnson Passage, Birmingham,
London Office and Show Rooms—119, Goswell Road.**

All communications for Agencies to be addressed to Birmingham.



THE
ONLY
"GRAND
PRIZE"
FOR
SEWING
MACHINES
AT THE LATE
PARIS EXHIBITION.



WHEELER AND WILSON'S NEW SEWING MACHINES.

As a proof of the extraordinary favour these Machines have won for themselves it may be mentioned :—

The Company have recently received many large Orders, among others, for 400, 200, and several 100's and 50's of these Machines respectively, and from manufacturers of Clothing, Corsets, &c., &c., and have permission to give the names and addresses of these Firms when necessary.

The New No. 8.—The New Family and Light Manufacturing Machine. Strongly recommended. Price £7 10s.

The New No. 6.—A Powerful Machine, capable of doing all grades of work, from the finest to the thickest, in the best possible manner, including all the various kinds of Leather work. „ £8 10s.

Also **No. 6** Cylinder Machine for special classes of Boot work „ £10.

The New No. 7.—Similar to the No. 6 Machine, but especially suitable for Corset work, heavy Tailoring, Upholstery, &c. „ £8 10s.

The New No. 10.—(Just out)—This Machine is of large dimensions, having more room under the arm than any other intended for similar purposes. Notwithstanding its large size, it is so constructed as to run at as high a rate of speed as the lightest Lock-stitch Machine. It is designed on a new principle, has neither cogs nor shuttle, and is not liable to get out of order „ £9.

The Well-known Original Family and Light Manufacturing Machines—

Nos. 1 & 2 Price £6 10s., £7 10s.

The New No. 8 Hand Machine, (*specially recommended*) is the best and most perfect Hand Machine yet produced. Price, with COVER, complete £5 5s.

5 PER CENT. OFF FOR CASH.

MACHINES SUPPLIED ON THE HIRE SYSTEM

EVERY MACHINE MADE BY WHEELER AND WILSON HAS THEIR TRADE MARK AFFIXED.

Illustrated Catalogues and other particulars, Post Free.

THE WHEELER AND WILSON MANUFACTURING COMPANY.

Chief Office :—21, Queen Victoria Street,
London, E.C.

London (West) 139, Regent Street, W.
London (South) 49, Newington Causeway, S.E.
Belfast, 63, High Street.
Birmingham, Stephenson Place
Bradford, 57, Tyrrel Street.
Brighton, 163, North Street.
Bristol, 50, Victoria Street.

Cardiff, 19, Duke Street.
Cork, 32, Grand Parade.
Dublin, 1, St. Stephen's Green.
Edinburgh, 16, Maitland Street.
Exeter, London Inn Square.
Glasgow, 71, Union Street.
Hull, 9, Savile Street.
Leeds, 140, Briggate.
Liverpool, 61, Bold Street.

Manchester, 131, Market Street.
Newcastle, 71, West Grainger Street.
Norwich, 45, London Street.
Nottingham, 4, Albert Street.
Plymouth, 187, Union Street.
Portsmouth, 14, Middle Street, Southsea.
Sheffield, 15, Castle Street.
York, 21, Spurriergate.

And Offices or Agents in all important Towns.

BAER & REMPEL'S

New "Rotary Hook" Sewing Machine.

(W. & W. PRINCIPLE, NEW AND OLD STYLE.)

THE NEW STRAIGHT NEEDLE MACHINE "PHŒNIX" (Nos. 8 & 10).

1. **PHŒNIX La A.** (No. 8). For family use and light manufacturing purposes.
 2. **PHŒNIX La B.** (No. 10). Heavy manufacturing machine for tailoring, upholstering and heavy corset work.
 3. **PHŒNIX La C.** New high arm machine, medium size, having mechanical movements similar to the No. 10 machine, for family use and manufacturing purposes.
 4. **PHŒNIX HAND MACHINE.** On iron or wooden base.
- La SILENCIEUSE, Curved Needle Machine with improved feed.**

Our PHŒNIX machines are provided with a loose wheel for bobbin winding, the bobbin is very large and capable of holding more thread than any other family machine. The machines are absolutely noiseless and light running.

PRICE LISTS AND FULL PARTICULARS ON APPLICATION.

General Agency for the United Kingdom—

C. LOHMANN,
43, LONDON WALL,
LONDON, E.C.

BAER & REMPEL,
BIELEFELD, GERMANY,
Sewing Machine Manufacturers,
(ESTABLISHED 1865).

RAYMOND'S

CANADIAN SEWING MACHINES.

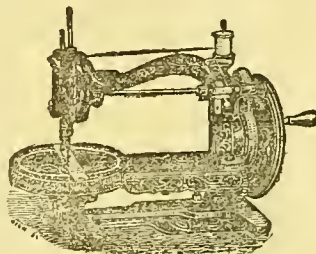


£2 2s. Complete

THIS Machine has obtained the high reputation and an enormous sale, both under its true name ("Raymond's"), and also as the "Weir 55s. Machine," &c. — (See caution below). It is durable, rapid, exceedingly simple, neat, not liable to get out of order, and warranted to sew from the finest muslin to the heaviest material.

CAUTION.—JAMES G. WEIR, who, for about eight years obtained these genuine Machines, is no longer supplied with them by the Inventor and Manufacturer, Mr. CHARLES RAYMOND.

BEWARE OF ALL COUNTERFEITS.



ALSO

£4 4s. Complete.

RAYMOND'S PATENT "Household" Lockstitch Machine has been designed expressly for family use. It is exceedingly simple to learn and to manage, and warranted to sew every kind of family and household work. Is fitted with the latest improvements — loose wheel, and (Registered) Automatic Bobbin Winder.

Testimonials, Prospectuses, Samples of Work, and all particulars free on application.

Raymond's No. 1 and 2 TREADLE MACHINES for Families, Dressmakers, and Manufacturers.

AGENTS WANTED.

CHIEF DEPÔT FOR EUROPE AND EXPORT:

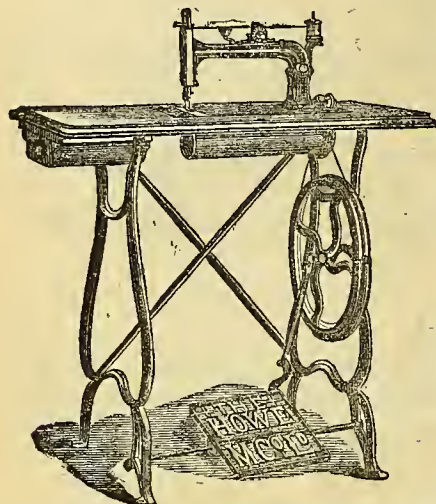
11, MOUNT PLEASANT, LIVERPOOL.

P. FRANK, AGENT.

ESTABLISHED 1863.

ELIAS HOWE SEWING MACHINES

ADAPTED FOR EVERY DESCRIPTION OF WORK.



Purchase no Machines

WITHOUT THIS
Trade Mark.

Complete with all
Appliances from
£4 4s.

Price Lists and Samples
of Work post free.



Manufacturers of Boots and Clothing, who carry on a high-class trade **ONLY USE THE HOWE MACHINE.**

A trial is all that is necessary to convince those in want of a Sewing Machine that **THE HOWE** is entitled to pre-eminence over all others.

Families will find no other Machine which will do the same range of work. Sewing from the finest Muslin to several plies of heavy Cloth.

Dressmakers who once use **THE HOWE** give it the preference over all others for beauty and durability of Stitch.

The Howe Machine Co. are also Manufacturers of Bicycles and Tricycles.

THE HOWE BICYCLE, PRICE FROM £15 15s.

Possesses all the latest improvements, and will be found unrivalled for quality of workmanship and material. See Special Lists.

THE HOWE TRICYCLE, PRICE £16 16s.

A Machine designed on the Best Mechanical Principles.

THE HOWE MACHINE COMPANY (Limited), 46 & 48, Queen Victoria Street, London.
Factory—**AVENUE STREET, BRIDGETON, GLASGOW.**

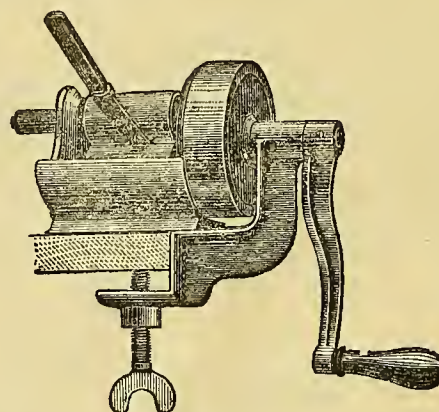
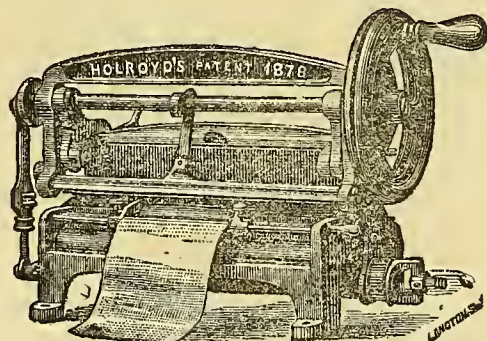
JOHN HOLROYD,

MACHINIST,

TOMLINSON STREET, HULME, MANCHESTER.

MANUFACTURER OF THE

"HOLROYD" KILTER, THE "HOLROYD" KNIFE CLEANER, "WISEMAN'S" HAND-STITCH STRAW HAT SEWING MACHINE, &c.

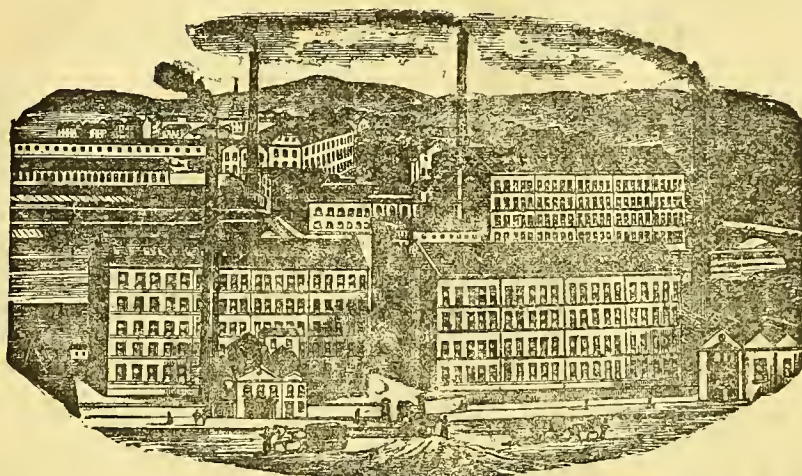


The continued demand for the "Holroyd" Kilter is a satisfactory proof of its usefulness and popularity.

J. H. having suitable plant is prepared to contract for manufacturing Sewing Machines or any other kind of light machinery or tools,

CORRESPONDENCE SOLICITED.

SEND FOR CIRCULARS & TERMS.



JOHNSTONE FLAX MILLS.

INDEPENDENT TESTIMONY.

FINLAYSON'S THREAD,

AT THE

GREAT AMERICAN LEATHER FAIR

The Threads manufactured by FINLAYSON, BOUSFIELD & CO. are in practical and exclusive use during the Exhibition in Mr. Tilton's Boot Factory, and by the Goodyear, the Blake, the Keats, the National Wax Thread Machines, and by the New International Dry Thread Machine. This, as a practical endorsement of this Thread, is certainly very suggestive, and it is doubtful whether stronger testimony, from those best qualified to judge, could possibly be given, 'as to the quality of the article under notice.'—*Boston Advertiser*, September 10, 1881.

FINLAYSON, BOUSFIELD & CO.,

FLAX MILLS,

JOHNSTONE, near GLASGOW,

AND

GRAFTON FLAX MILLS U.S.

CAUTION.**SINGER'S SEWING MACHINES**

ARE MANUFACTURED ONLY BY

THE SINGER MANUFACTURING COMPANY

(Formerly I. M. SINGER & Co.)

BEWARE OF COUNTERFEITS!

Every SINGER'S MACHINE

bears

THE SINGER

MANUFACTURING COMPANY'S

TRADE MARK

as per the

ANNEXED SKETCH.



THIS TRADE MARK

is affixed

TO THE MACHINE

near the

BALANCE WHEEL,

and also cast

in each side of the Stand.

TO AVOID DECEPTION,
Buy No Machine
WITHOUT THE ABOVE TRADE MARK,
AND SEE ALSO THAT THE COMPANY'S
TRADE NAME 'SINGER' IS UPON THE
ARM OF THE MACHINE.

The Singer Manufacturing Company,
(Formerly I. M. SINGER & CO.)

CHIEF OFFICE IN THE UNITED KINGDOM:

39, FOSTER LANE, CHEAPSIDE,
LONDON, E.C.

And 400 Branches in all the Principal Towns of Great Britain and Ireland.

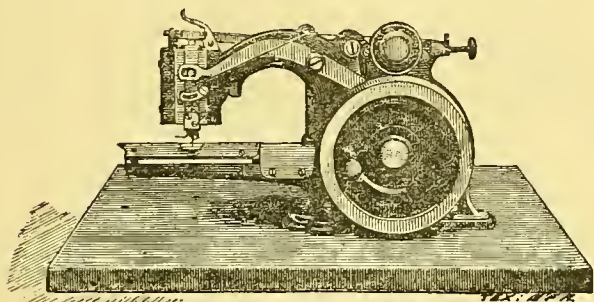
BENSONS' PATENT HEMSTITCHING MACHINE.

WE should not be surprised if to many sewing machine makers and dealers the word "hemstitching" would convey no meaning, and that, therefore, a sewing machine for doing this work would be entirely unknown and unheard of by them. But "hemstitching" or "veining" as it was generally known—or, as our French neighbours term it, "the daylight stitch"—has been known for a good many years. It is almost universally applied to handkerchiefs, taking the place of the narrow hem border, and, we think, was first introduced into this country some thirty or forty years ago.

Until comparatively recent years this stitch was entirely done by hand, and, as a natural consequence, was only put on the finer and more expensive handkerchiefs. "Hemstitched" handkerchiefs fetched so high a price that very few of them were sold in comparison to other goods, and were confined to ladies' sizes only.

Some years ago, however, attempts were made to substitute machinery with more or less success, and one or two cambric handkerchief manufacturers brought out some very home-made machines which turned out a certain amount of work, and thereby enabled them to eclipse their competitors. In all these cases the machine was confined to their own use and jealously kept under their own control.

About four years ago Mr. Benson (who already possessed a clumsy machine for this purpose) succeeded in bringing out and patenting a machine—an illustration of which we give—which at once was recognised as the best "hem-



stitching" machine yet produced. Having thoroughly tested it in his own factory he commenced to offer it for sale, and with such success that in a few years about a thousand of these machines were in operation, chiefly in Ireland, but also in France, America, Belgium, Germany, &c.

The fact of increasing the power of production in "hemstitched" handkerchiefs very soon began to be felt, and although these began to be turned out in enormous quantities, the demand (especially from America) has been very large, and "hemstitching" has been transferred to gentlemen's handkerchiefs and then to cotton handkerchiefs. In fact the price of the work has been reduced so much that a fine cotton handkerchief in ladies' size, "hemstitched" and beautifully washed and ironed by hand, put up in a neat box, has been sold by manufacturers as low as 2s. a dozen.

The "Hemstitch" is rather an intricate one, and the machine requires to be very carefully made and finished in order to produce satisfactory work. The worker also requires to give very close attention, as it is a much more difficult machine than the ordinary run of sewing machines.

The patentee has kept the control of the patents in his own hands, and supplies the machine direct from the Hope Street factory. In this factory and in another one in the country the patentee keeps about one hundred and twenty of these machines constantly at work.

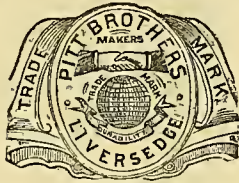
Since the introduction of machinery into this branch of the handkerchief trade, it is estimated that about three or four thousand hands have found employment in "hemstitching" and preparing the handkerchiefs for the machine, while the production of handkerchiefs may be roughly estimated at between two and three thousand dozen a day.

BEAUTY IN MACHINERY.

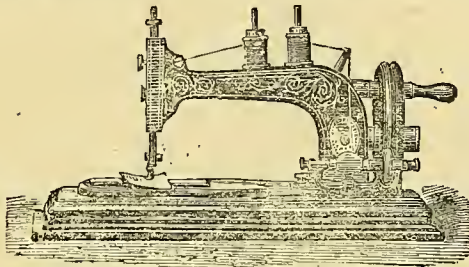
IT is impossible to tell how great an effect upon the mind of a purchaser a superior finish in a machine will create. A few cents or dollars, as the case may be, expended in appropriate finish, may prove decisive in influencing the purchaser in his selection. This is, undoubtedly, often the case, when, if the facts were suggested to him, he would scout the idea. Somehow it is easier to believe that a handsome machine will do good work than one that is ungainly in appearance. If superior finish, then, is an important means in promoting the popularity of the machine, and hence aids in its disposal, certainly it is desirable that it should be employed. The strongest evidence that good workmanship pays is seen in the almost universal practice in the best machine shops of turning out their work in the most finished form. Care is bestowed on the design of the various parts in making them symmetrical and presentable in appearance. A great amount of study is also bestowed upon making the general form of the machine pleasing to the eye, and its attractiveness is often enhanced by the display of expensive work in the plating, painting or polishing of some of its important parts. In not a few instances manufacturers have carried their desire for ornamentation to too extreme lengths; but over-ornamentation is one thing, and tasteful ornamentation is another. Aside from the seller's interest in making his machine attractive in order that he may promote his sales, the purchaser has an interest in having the machine he designs to purchase constructed with a reasonable regard for its beauty and comeliness. The machine, when placed, forms a part of the furniture of his works. No man is so blind to a sense of the beautiful that he would not prefer to have, if he could, not only machines of best make, but of best finish. If men take a pride in the surroundings of their works, in the form of the buildings comprising them, then certainly should they take a pride in the internal arrangements and furnishing of these buildings, and most manufacturers do take great pleasure in having their machinery beautiful, and constructed with a view to harmonious proportions. The greater number of machine builders, we believe, now think that it is a wise investment to expend an additional amount above that actually required in bringing out their machines, in making them attractive and presentable. They know they will sell better, and the purchaser will be better pleased with them when set up and at work in the shop.

SEWING MACHINES from the ALMA FOUNDRY.

FOR thirty years Messrs. Pitt Brothers, of Liversedge, have devoted their time to the manufacture of sewing machines, and during that period they have attained much practical experience, which has resulted

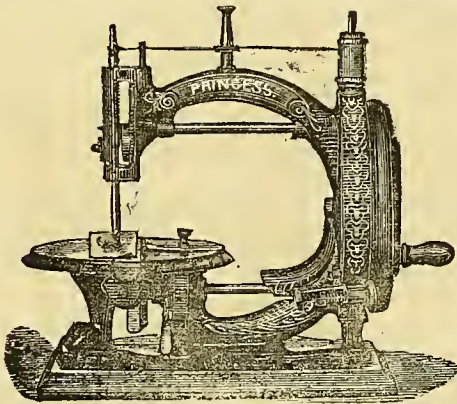


in their turning out from the Alma Foundry very finely constructed and finished machines, which, unlike the pedlar's razors, are not only made to sell.



No. 1a.

Each domestic hand and treadle machine has an automatic spool winder—simple and accurate. It winds the thread on the shuttle bobbins beautifully, even without touching it with the hands. Nearly double the quantity of thread is thus got on, is kept clean, and there is secured

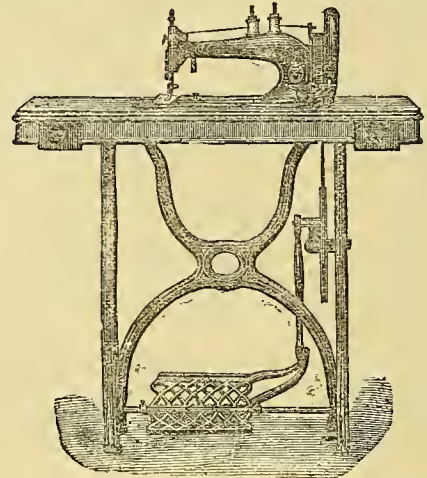


No. 3a.

a regular and even tension. During the operation the balance or driving wheel (which is silver-plated) is disconnected from working the machine, thus saving the working parts from unnecessary friction and rendering it unnecessary for the operator to remove the work or attachment, hitherto a great nuisance to dressmakers and others when sewing particular work. The shuttle protector fitted to their machines is a preventive to the many breakages

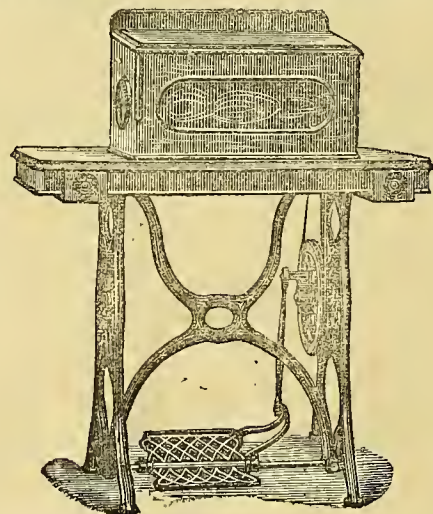
that daily occur. Every machine made at the Alma Foundry is handsomely ornamented and finished in superior style, being elegant as well as useful.

Among the many machines manufactured by Messrs. Pitt Brothers, of Liversedge, are a lockstitch family machine, simple and durable; a medium machine for both light and heavy work; a hand machine, one of the most durable in the market; and a circular feed machine for boot manufacturers. The latter, now extensively used in



No. 4.

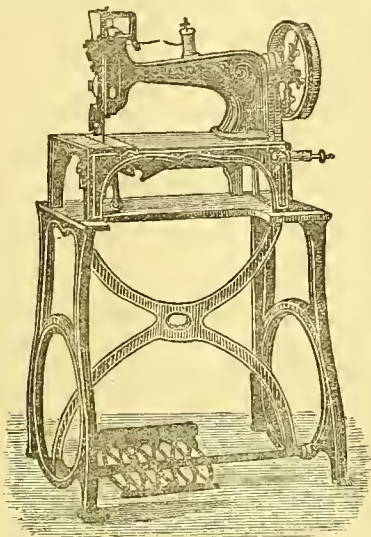
France, Germany, and other parts of the Continent, was designed and invented by Messrs. Pitt Brothers, to meet some important requirements in sewing machinery; among which are the means of repairing boots, especially of renew-



No. 5.

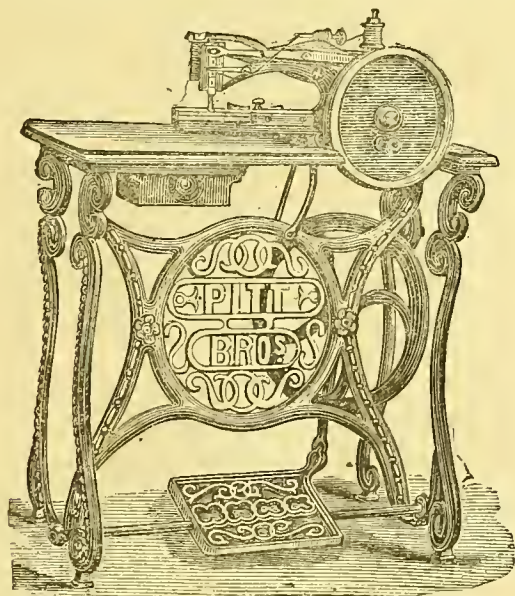
ing worn-out elastics, and of obtaining perfect control of the feed motion for stitching in any required form, without the trouble and loss of time consequent upon changing and

adjusting the foot. In this machine, by a very simple and ingenious arrangement, the direction of the feed movement can be instantaneously changed even while the machine is in rapid motion, so as to stitch a straight, transverse,



No. 2 Manufacturing Machine.

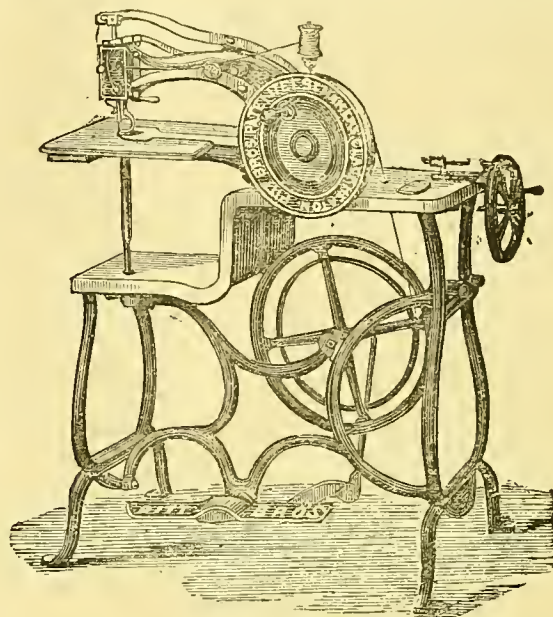
angular, or circular seam. It is specially adapted for sewing elastics in old boots, stitching round goloshes and down the fronts and backs of boots. It can be used for any ordinary purpose, and its special adaptation for replacing worn-out elastic sides and other repairs renders it especially valuable to boot makers, to whom it is confidently recommended as an indispensable requisite.



No. 2 Arm Manufacturing Machine.

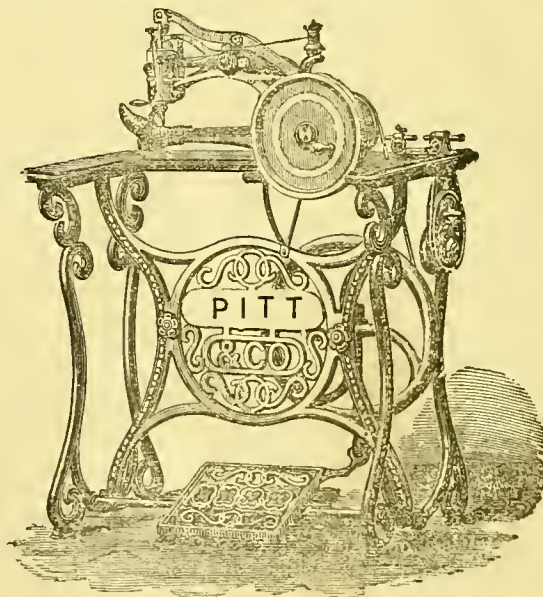
Many other machines are made by Messrs. Pitt Bros. Their Carpet, Rug and Blanket-beading machine is largely

used by the majority of makers in the North of England, including the well known firm of Messrs. John Crossley, Sons & Co. Limited, contractors for the manufacture of army clothing; and wholesale clothing manufacturers find



The Circular Feed Machine.

a reliable friend to aid them in their work in the shape of the No. 2 Manufacturing machine; while for sewing the sleeves into the coat the No. 2 Arm machine is most valuable. This machine is also much used by hat and cap makers, and those who manufacture the supports of the fair sex—stays. In the way of fancy covers to their family machines the writing desk cover made by this firm is both ornamental



The Circular Feed Machine (with different Stand). and useful; while their other cabinets are elegantly made and in keeping with their machines.

THE DECORATIVE TREATMENT OF METAL.

By GEORGE H. BIRCH.

THE first metals with which we have to deal are the precious ones, gold and silver, and the first nation to whom one would naturally look for examples of the use would be Egypt—that mysterious land, with an antiquity so remote that, notwithstanding the flood of light which has been thrown upon its early records by the fortunate discovery of the key to its hieroglyphics, our knowledge of the earlier dynasties is but slight and superficial, a knowledge which I believe to be only on the threshold of the door through which we are to see the dim vista of departed ages. The slab of Hatharsa, of the twelfth dynasty, describes that he “compelled chiefs to wash gold;” and the tablet of Nebusaiu, in the reign of Ramenkeheper (“Thothmes” III.), more particularly sets forth that, as High Priest of Osiris, “I dedicated numerous works in the house of my father Osiris, of silver and gold—I was called to the house of gold;” thus clearly setting forth that this metal formed an important part of the architectural decoration. Egyptian architecture in these days shows but little trace of any metallic adornment, nor was its use at any time so prevalent as with the Assyrian, Chaldee, Babylonian, Medo-Persian, and other Semitic races. Gilding was applied, not much as we understand it now, when the metal is beaten and applied in an infinitesimal manner; the ancient leaf gold was much thicker. An inspection of some of the mummy cases, both at the British Museum and the Louvre, will give an idea of what the Egyptians call gilding. The material of which some of their stupendous temples were built, as Karnak, Luxor, Abydos, and Medinet Habou, being either a fine limestone or granite, the same necessity did not arise as in the valley of the Euphrates, of covering up an inferior material, such as sun-dried bricks, with costly sculptured slabs. In Egypt sculpture and painting were profusely applied to the exclusion of other forms of decoration; but we know that many of those very beautiful monolithic columns called obelisks were decorated with gold; both the pyramidion and the base were sometimes either gilded or covered with metal plates, and were often surmounted by a gold disc; and gold must indeed have been very plentiful among them, if the Children of Israel could borrow to the extent that they afterwards did. The gold mines of Midian were very extensively worked by the Egyptians. Captain Burton has discovered the cartouche of Rameses III. in some of the disused workings, and the cartouche of a much earlier king, Kheperkara, or Usertesen, in the Sinaitic peninsula.

The great Assyrian empire—an empire old even in the days of Abraham, and whose sway once extended over the whole of Western Asia—was remarkable for its use of the precious metals as architectural adornments. Babylon and Nineveh, two of the mightiest cities of the old world, whose very existence had been questioned, as their sites had been forgotten, contribute, by the mute evidence of their sculptural inscriptions, in a character once as mysterious as the Egyptian, to the truth of many of the statements made by that wonder-loving Greek, Herodotus, of Halicarnassus. One of these stories was that the temple that Nebuchadnezzar built at Borsippa, and which consisted of several stories, diminishing in size and superimposed, the outer wall of two of these being covered with gold and silver plates respectively; and that at Agbatana, the capital of the Medo-Persian empire, the palace of the

king, which had wooden beams, ceilings, and pillars, was covered with plates of gold and silver, and was roofed with silver tiles. There seems to be a possibility of truth in the latter statement, for Polybius, who may be accepted as a more sober adherent of actual truth than Herodotus, confirms this (Book x., chap. 27). Darius, when retreating before Alexander, took gold away from Agbatana to the amount of 7,000 talents; and yet, in the time of Antiochus the Great, sufficient remained to afford another 4,000 talents' worth of loot. This palace was at the foot of the citadel, and about seven furlongs in circumference.

The temple at Babylon, which Herodotus calls the temple of Jupiter Belus, seems also to have been richly decorated; but the historian is careful enough to guard himself from any exaggeration, by stating that he had heard from the Chaldeans that the statue of the god and the throne and altars were all of solid gold, but that he himself had not seen them, and that they were worth 800 talents. The scriptures mention the golden image which Nebuchadnezzar the king set up. The discoveries at Nineveh, Khorsabad, and Koyunjik, have brought to light the plan and arrangement of the palaces of several generations of Assyrian monarchs; and the British Museum contains the wonderful sculptural slabs and colossal winged bulls and genii, which lined and adorned the various apartments of these truly regal halls. In imagination we can once more conjure up the splendid vision of their pristine magnificence—the walls glowing with sculpture and colour, and built, or rather lined with costly alabaster; the gilded ceilings, the battles and triumphs, the huntings, and feastings, and religious festivals of the Shalmanesers, Assurbanipals, Sargons, Sennacheribs, Esarhaddons, and Sardanapalus—names so familiar to us now, not only from the handwritings on the walls of their palaces, but from their deeds, their conquests, and reverses, so graphically described in the Bible. “The solemn temples, the gorgeous palaces” have passed away, and left but ruined heaps and grass-grown mounds behind. “Babylon the mighty is fallen. Babylon, the glory of nations, shall never be inhabited; the wandering Arab shall not pitch his tent, nor the shepherd lead his fold. The wild beasts shall howl in her pleasant palaces. The golden city hath ceased.”

Contemporary with this mighty Assyrian empire, and finally absorbed into it, is the kingdom of Israel; and here we have no occasion to trust to the hearsay evidence of a polished Greek. We know from the Bible itself the extensive use that this purely Semitic race made of the precious metals, when it is recorded that, in the time of Solomon, gold was nothing accounted of, and silver in Jerusalem was as the stones of the streets.

It would be tedious to recount how, even from the time that the children of Israel were journeying in the wilderness before they had become settled in the Land of Promise, they had employed some of the precious metals which they had borrowed, in making the sockets, and rings, and capitals of the columns for the Tabernacle, and how the columns were overlaid with pure gold, which I myself should consider as a slightly hyperbolic way of describing plain gilding, excepting, of course, the candlestick and lamps, and altar of incense, which were of pure gold, and according unto the pattern shown to Moses on the Mount. Four hundred and eighty years afterwards, when all the neighbouring and hostile nations had been successfully subdued or utterly annihilated, and they had become a rich

and powerful nation under David, Solomon, his son and successor, 1,015 years before Christ, began the building of that wonderful Temple—wonderful not for its size, for it was far surpassed both in size and magnificence by the temples of contemporary nations, and in beauty by succeeding ones—Thebes and Memphis, the Parthenon and Ephesian temple, all erected to false gods; but it was wonderful as being the only building of a true and pure faith, the embodiment of the religion of the Most High, and in which a chosen nation's hopes and aspirations were inseparably centered, and will be for all time.

Although we know that the walls were of hewn stones, great and costly, its chief embellishments were principally metallic, and consisted of the precious metals, although bronze, to which I shall have again to allude, was extensively used. As to its form and fashion, it matters but little whether it resembled Persian or Egyptian examples; volumes have been written, and authorities have wrangled over it for ages. One modern manufacturer of mediæval metal work has attempted to prove that it was entirely made of metal, and that no stone was used except for foundations, and bases his belief on one particular verse in the 1st Book of Kings, which states that there was neither hammer nor axe, nor any tool of iron heard in the house when it was building, so that all the parts must have been put together with screws; rivets would have been impossible under the circumstances. One might equally as well start the theory that it was entirely of cedar or other wood, and quote the same chapter as an authority, "as there was no stone seen."

Josephus' description of the temple, although mainly derived from the same source, the description in the 1st Book of Kings, is so far interesting as it is interwoven with other traditions, which doubtless had been handed down from generation to generation among the Jews; and even allowing for that love of hyperbole, so natural to Eastern nations, and pardonable in Josephus, who was compiling a history of his own race, and was naturally anxious to represent them in the best light to the Roman conquerors, this temple of Solomon must, indeed, have been truly resplendent, and a matter for wonder and admiration, not only with the Jews, but among neighbouring nations, and, perhaps, also a matter of cupidity, for a very few years afterwards, in the reign of Solomon's son and successor, Rehoboam, Shishank, called Shishak in the Bible, king of Egypt, marched against Jerusalem, and spoiled the temple, emptying it of its treasures, and carried off an immense booty of gold and silver, leaving nothing behind.

THE NEW WILSON FACTORY AT WALLINGFORD, CONN.

THIS building is large enough to produce one hundred thousand machines per annum; it is supplied with ample power for this amount of work.

The manufacturing department is complete in all its details, and the machinery, tools and fixtures, are in first-class order.

The factory is being rapidly filled with raw material. The Superintendent is employing workmen as rapidly as he, with his corps of assistants, can provide work for them, and it is expected that in a very short time the production of machines will be one hundred per day.

The Wilson Oscillating Shuttle Sewing Machine is now in a very high state of perfection. Mr. Wilson has expended over one hundred and fifty thousand dollars, and nearly four years of close personal attention in attaining for this already famous sewing machine its present enviable reputation; money has been used unsparingly to develop and perfect a new system of mechanism which is entirely original in this machine, and which is secured by fifteen patents, controlled by this Company, so that the Wilson Oscillator, in its present position and future prospects, stands very high indeed. This machine is unlike the Wilson Oscillating Shuttle Sewing Machine manufactured and sold by the Wilson Sewing Machine Company of Chicago, except in its mechanical principles. It has been entirely remodelled, and the new Company commences the manufacture of it as something absolutely perfect, and with no expense of experimenting. The large expenditure of time and money before alluded to, made by Mr. Wilson to achieve this high degree of excellence, was that he might originate a sewing machine which would be a lasting monument to his untiring labor of twenty years' duration, and give the people something they might justly feel proud of and that would be the envy of competitors.

We understand that part of the machinery and tools used in this machine, and also existing patents of the Oscillating Sewing Machine, have been purchased of the Wilson Sewing Machine Company, of Chicago.

THE VERTICAL FEED MACHINE IN AMERICA.

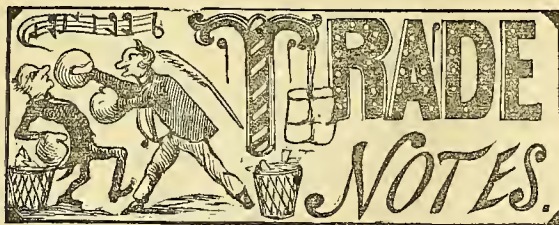
AT the State Fair, in Rochester, the Vertical Feed made a fine display. The variety of work done was much admired, and very many said that they had never seen it equalled or attempted by any other machine. It seems to be impossible for the under-feed machines to produce attachments that work equal to those of the Vertical Feed Company.

At the Gouverneur (St. Lawrence Co.) Fair, the Vertical as usual was the centre of attraction. The beautiful samples of work made upon it were much admired.

The Vertical was one of the principal attractions at the Antwerp Fair (Jefferson Co.) The crowd said the Vertical eclipsed all others. The demand for the beautiful samples of work made at the exhibition, and the delight manifested at the ease with which the great variety of work is done, showed the appreciation of its superiority over other machines.

CRANK pin boxes and main shaft bearings should be of phosphor bronze bearing metal, or of good gun metal (copper and tin), or of genuine Babbitt. The journals should be kept accurately in line, and the fit should be just close enough to allow the flow of oil to pass. If too tight, they will heat and sweat; if too loose they will pound and wear—and if out of line, they will do all three.

A MAN who is particular in grinding his tools and keeps them the same shape till they are used up, gives a tool dresser far less trouble than those who do otherwise. Filing and polishing have given place to water cut finish and scraping. Still there are men who yet advocate dry cuts and file rasping. Some lathe-men make excessive use of the file; they can finish nothing with tools—everything has to be rasped into with a file and then scoured with emery paper to try and take out the file scratches.



Mr. G. C. TURNER, Midsomer Norton, has disposed of his general ironmongery business to Mr. S. Raine, Bradford.

Mr. G. TURNER, Clevedon, ironmonger, has sold his business to Mr. G. C. Turner, late of Midsomer Norton.

Mr. T. AINSWORTH, hand-sewing and machine-thread merchant, of the Cleator Mills, Whitehaven, has taken offices at 17, Lawrence-lane.

Messrs. MERRYWEATHER AND DAVEY, ironmongers, of Broad-street and Sheaf-street, Sheffield, have dissolved partnership, the business will be continued by Mr. G. H. Merryweather.

Mr. JOHN CHILD, Headingley, Leeds, machinist, has purchased the business, goodwill, and plant of Mr. James Mitchell, washing machine manufacturer, Newcastle-on-Tyne. The business will be carried on by Mr. Child, at 156, Westgate-road, Newcastle-on-Tyne.

The business of Messrs. Richards and Sons, general ironmongers, Belgrave-gate, Leicester, has been purchased by Messrs. Buswell and Rollet, who will trade in their own names.

Messrs. TOPHAM AND PICKMAN, filter manufacturers, of 20, Barton House, Deansgate, Manchester, having dissolved partnership, the business will be continued by Mr. J. H. Topham.

Mr. C. WHITHAM has retired from the firm of John Whitham and Co., ironmongers, of Padiham, Lancashire.

The executors of the late Mrs. Gubb, ironmonger, Topsham, have disposed of her business to Mr. Henry Gubb.

Mr. EDMUND HEMUS, High-street, Tewkesbury, has disposed of his ironmongery business to Messrs. King and Handley.

HOW SCREWS ARE THREADED.

SCREW threads are "originated" in the lathe usually. All lathe turning, with regular—constant—feed of the turning tool, is screw cutting, or threading; the tool cuts a spiral around a revolving cylinder.

It is evident, therefore, that by increasing the speed of the feed relative to that of the revolving cylinder, and having the point of the cutter properly shaped, a screw thread would result, instead of a paring off of the entire surface of the cylinder. All important actuating or working screws, as those for feeding on machine tools, are formed in this way, and large numbers, also, of ordinary machine screws, which, when once seated, are expected to remain *in situ* until the machine or implement of which they form a part is worn out.

Wood screws, as screws for fastening wood to wood, metal to wood, &c., are threaded in a similar manner, the thread being cut from the solid by a single cutter removing the material between the threads.

Large numbers of screws are threaded by dies, which may be called hollow screws, or nuts with cutting edges.

These, by rotating, form the feed as well as the cutting device for threading the smooth cylindrical rod or bar. Some of these dies are worked by hand, others by power, but in either case the cut, by the modern and improved dies, is clean, and the thread is formed from the solid. The old-fashioned dies were adjustable so as to be "set up," and could be made to cut several sizes of diameters. Much of their work was done by pressure, or squeezing, and a part of the thread was "raised" instead of being cut from the solid material. There are adjustable dies made now, but they are so formed as to do solid cutting.

Threads on large cast-iron screws are sometimes formed simply by being cast, and formerly there was much cheap small work of that sort in the market.

Threads may be raised by forging in dies, and some good work by this is produced. In both these cases, however, an after-finish in the lathe is desirable.

For some peculiar purposes threads are formed by twisting a square or a flat bar; a common form of hand drill that has superseded the bow drill being a case in point. The stock of this drill is a bar, square in cross section, twisted, and which is rotated by sliding a loosely fitting nut rapidly back and forth over its length. A familiar instance of a screw thread of this description is the ordinary auger or bit, the cross section of which is a flattened parallelogram like a flat bar.

One peculiar method of forming screw threads remains to be mentioned. It is that of raising a thread by rolling between dies under pressure. There is a great deal of what is known as "bright wire goods" in the market, which are threaded. In many cases these threads are formed by simply rolling—one revolution or a little more—the wire between two hardened steel plates that are corrugated spirally to form, when combined, a continuous thread. Sufficient pressure is applied during the rolling—which, however, is very rapid—to raise the metal from the annealed wire enough to make a thread. In this case the threaded portion is considerably larger than the stock or wire, at least half the depth of the thread on each side.

The threads in nuts are produced either by the "originating" method, cutting them in a lathe, by being tapped, or sometimes by being cast of soft metal, as brass, on a threaded core of hard metal, as iron or steel. But nuts are mostly threaded by tapping, running one, two, or three successive taps through them either by hand or in a power machine.

THE AMERICAN HOWE MACHINE COMPANY.

THE following "Notice" to the Howe Machine Company's agents, and the public, will be read with pleasure by many friends of the Howe.

NOTICE.

BRIDGEPORT, Ct., Aug. 25th, 1883.

A. FAIRHURST, Manager,
The Howe Machine Company,
New York.

DEAR SIR:

We announce to the public and trade, that we have already commenced placing machinery in the building saved from the fire, and have commenced the manufacturing of the tools to make the new Howe Sewing Machine. We will have machines ready for delivery on or about December 1st, next, in sufficient quantities to supply our trade. Assure any one of your customers, with as little delay as possible, that they may rely on this.

Yours, very truly,
THE HOWE MACHINE COMPANY,
E. PARMLY, Treasurer,

ART AND ITS INFLUENCE.

Man is essentially a creature of imitation; possessed with the power of contemplation, he desires the ability to pourtray, either in words or form, the objects he surveys, or the thoughts his imagination gives rise to. All nature lies before him in all its glorious beauty and sublimity, prompting his soul to use art and its influence to embody and bring into one grand brotherhood of spirit all created nature. The development of these feelings and tastes, which so captivates and delights in their reproduction, is an evident sign of that longing of the soul for ideal perfection and harmony which speaks out most unmistakably for man's immortality,—it speaks of something higher than what his eyes rest upon; and, although this is all grand and glorious, it does not satisfy him.

In tracing the influence of this faculty of imitation in man, I propose to limit myself to a few thoughts upon art as it is generally understood by us, as man speaking out his thoughts in a tangible form—an appeal to the senses.

When we come to look upon art and its influence upon society, we find a considerable amount of reciprocity between them; art strongly influencing society, and society quite as strongly making itself felt in the somewhat exclusive domain of art,—they act and re-act upon each other. Still I consider the influence art has upon society is far greater than the influence society brings to bear upon art, inasmuch as one is the teacher and the other the taught. High art can never exist and flourish but when philosophy and mental culture are largely influencing a people.

The period when art rose to its highest point of excellence was when those great master minds were developed in past ages of the world's history, who have since exercised so stupendous an influence over the whole world of thought.

The empire of art extends over all space, and brings before us all the beauties of nature, both of sea and land. We love to depict the heroic deeds of our great men and heroes, and to perpetuate their forms, that our eyes may ever dwell upon them for imitation and example.

The deeds of piety, patriotism, and humanity we delight to honour, and equally so we show at the same time our horror of iniquity, our pity for suffering, and our love for truth; these and the world of imagination belong to art, and are its legitimate property, for its unlimited influence.

To trace the gradual influence of the faculty of imitation from the savage who decorates what he loves the best—his own body and his club—to that grand and sublime figure, the Apollo Belvedere, would be a very pleasing task; but I must no longer dwell upon the threshold of my subject but seek at once, and in as few words as possible, to show you the influence Art has in the formation of the character and manners of a people.

As soon as the intellect of man becomes active his thoughts form in words; he seeks also to put them into shape and substance. The fact is, art is a language, a universal language, by which man may appeal to his fellow-man the wide world over, and come at once to the most perfect and satisfactory understanding, although they may have not the faintest conception what each is saying to the other in words.

The savage who paints his body is desirous of telling a tale of some kind or other to his fellows. He wishes to teach and impress them with exalted ideas of his own consequence and power, and he takes the most ready way to do it, through their eyes. As he advances in power and

intellect, his great deeds must be commemorated, so he carves them in stone; his piety and superstition becoming excited, he looks about for something to worship; he at once takes a tree or a stone and fashions himself a dog. At first all these attempts are very rude, but they are in keeping with his thoughts; as he becomes more refined his powers of execution become also more perfect, and his desire to ornament and decorate becomes a necessity of his being.

It was upon the banks of the Nile that art first became an exponent of the character of a people, and there it rose to become a great power. I suppose we cannot trace art earlier than to the Egyptians, for before this all was one vast night of ignorance. Egypt may be said to have been the cradle of the arts twenty centuries before our era, and some 1,000 years before the earliest known work of Greece was seen the sublimity of Egyptian art was perfected. Their influence has been felt through each succeeding generation, and we must all confess the lessons they have taught us are amongst the most valuable that we have learned from antiquity.

With these people the religious element was the grand motive power which sought the influence of art. To teach, to overawe and lead captive the minds of the people, the artist created those great and wonderful temple palaces that in all ages have been the wonder of the world; they traced in stone the mind and heart of a nation, and aimed, through art, at a material immortality. They were more successful with the mind than with the body, for what they have handed down of their bodies is a disgust, but the embalmed minds of their master spirits is enshrined for ever in their temples as the most sublime and imposing of forms.

They sought to write their historical records in the language of symbolism, the only language a people low in the scale of intellectual capacity could be expected to understand.

The Greeks were the next by whom art was used as a power, borrowing their civilization and religion from Egypt. They used the arts with still greater effect to captivate the intellect and senses. The Egyptians' faith being more spiritual and mystic, they used symbolism and hieroglyphics to convey their thoughts and embody their emotions. The Greeks being more sensuous and material in their religious belief, became purely material in the practice of it; beauty of form (even to the exclusion of expression) was their great aim. They loved all nature, and sought all the influence of art. Their belief in God developed itself in a higher development of human nature, and they worshipped their gods in the image of men. Possessed of a chastened and refined intellect, and gifted with a lively imagination, they soon conceived humorous stories and adventures about their gods, and were not long before they were possessed with a mythology and gave a deity to control all nature and direct all thought and desire. Possessed of a deeper and a grander philosophy and literature than any people on the earth, and also a strongly religious incentive to the beautiful, they raised art to a greater eminence than it had ever reached before, and became the source of inspiration for all future ages.

Art has at all times been a revelation of the soul of man, and in its influence has shown the exact power of the soul as distinctly as any historian or poet could have done. At the time when Greece was at the height of her glory, art and its influence, with philosophy and poetry culminated together, and formed such an era of intellectual greatness

that has served all succeeding generations with a fruitful source of material for the study of the sublime and beautiful. The Romans added but little to the true grandeur or sublimity of art. Becoming more gross and animal than the Greeks, they soon lost their refinement and delicacy, and in conquest, glory, and luxury, used art and its influence as a means only of adding to her sensuality, pride, and ambition.

Passing over the downfall of Pagan art, we come to the revival of art known as Christian art, an embodiment of Christian symbolism when Christianity became a power in the world. In our own way we have this style of art revived, and we call it Gothic. It is the style in which we think all our places of worship ought to be built. It has given us many noble monuments of beauty and skill, and was well adapted to the requirements of the worship that prevailed and which called it forth. The influence of art carried out in this style was made to act strongly upon the feelings and affections of the worshippers who were greatly influenced by a most gorgeous ritualism, and the symbolism of Christian art was used as a language wherein to speak the sacred truths of our faith and hope.

In all this the influence of art was but limited and comparatively exclusive. What we want now is, that art should go hand in hand with our spelling-books and grammars, and become a part of our every-day education, the teacher to the multitude, and the exponent of all our most elevated thoughts; a rich inheritance to all classes of the community, elevating and refining the grosser portions of common humanity.

Now before all this can become a realised fact among us, before art can at all influence or teach our people lessons, true lessons of virtue and piety, it is absolutely necessary that their minds should be elevated and trained by education. Minds degraded and blinded by ignorance and vice can never rise to a proper appreciation of art, or be influenced to great deeds by the lessons it is so well calculated to teach.

Our standard of taste is influenced by what we see and use, and much that appears good is no longer so when we have seen something better. In seeking for a proper influence for art, we must be very careful in the cultivation of it. We should have present objects of the highest style of art; nothing common or unclean must be tolerated, for the mind is very easily influenced and led away into wrong channels; indeed, you often find the people more readily run after the flash and tricky style of art than after the really good and perfect.

In the study of the Antique we approach the fountain head of all high and true art; in those brilliant words of a bygone age we have the highest achievement that the mind and skill of man have ever yet attained to, and the greatest among us may well be satisfied if we have but made a successful copy, or drunk in little of the spirit in which they were wrought. We no doubt excel in the useful arts, and have achieved great success in the sanitary ones; but in high art we must stand in silent contemplation of these master minds, "for there were giants in those days."

Without doubt the climate had a great effect in fostering and maturing the fanciful conceptions of a people who delighted to roam through all the realms of the imagination. In those warm climates the simplest fare was easily got, and was all that was desired; their fancy and skill was not clogged with a dull, heavy, phlegmatic spirit like our own; but was easily in a transport of enthusiasm at the sight of

the inspiration of their gifted ones, and would spend eagerly the most of their time in admiring their works.

The power and influence the artist has are immense. He can create new tastes and feelings—he can easily lift and expand the soul of a people—he can surround with an atmosphere that will transport us out of ourselves, and give us new realms and regions in which we can dwell to satiety; so that the artist, whether we think it or not, exercises a most responsible position in society. That he may rightly exercise this responsibility and influence, and be a true teacher, he himself must be sincere and true in his devotion to art, and look upon himself not merely as one to please and amuse, but one whose work it is to instruct, teach and lead the people, and not just to perpetuate Venuses and Apollos and Nymphs. No, these, and the study of them, all are very well for the student, but we want our people taught, and improved by lessons of high and pure art.

SOMETHING ABOUT ALLIGATORS.

THE most fashionable material for small valises, satchels, hand-bags, portmonnaies and the like, is the skin of the American alligator, and in all the Gulf States, from Florida to Texas, these saurians are hunted to supply the demand. This fashion has not been in vogue for a very long time, but for the past three years the slaughter of the alligator has been carried on with great activity.

A reporter desiring to make some inquiry as to the extent of the trade in the skins of these saurians, visited several dealers in hides and furs on Peters-street. A number of the dealers handle alligator hides quite largely, and they were found entirely willing to give information on the subject. At the warehouse of Messrs. B. F. Simms and Son, a lot of several thousand of these skins was seen in process of being packed for shipment to New York and Boston. The skins were in the state known to the trade as "green salted," the freshly gathered hides being pickled in salt and remaining soft and pliable. There were the skins of saurians, from those of youngsters not much more than a yard long to the hides of monsters that must have measured twelve to fifteen feet when alive. One skin, minus the tail and the snout, measured thirteen feet by the line, with a corresponding breadth. The integument freed from the bony scales, which, like massive plate and armor, cover the back and head of the animal, was as heavy and as thick as a bull's hide, of which stout sole leather is made.

Only the skin of the belly and sides is used, the back with its coat of mail being cut from the hide and thrown away as worthless. Of a blackish blue hue on the sides and bluish white under the belly, all the skins showed great uniformity of colour, and each was curiously checkered in squares, which, being separated by intersecting grooves and wrinkled, gave the peculiar checkered appearance seen in all alligator leather. The flat parts of the skin are used for bags and satchels, while those portions covering the knees and elbows of the monsters' legs are peculiarly suited for the fronts of shoes and boots.

The trade in these skins takes them of all sizes from four feet up, the average prices paid here for green skins ranging from ten cents each for the smallest to ninety cents for the largest. The skins most in demand are about seven feet long, which is, perhaps, an average of full-grown alligators. Those from ten to fifteen feet long are classed as monsters.



CORRESPONDENCE.

IMPORTS OF SEWING MACHINES.

To the Editor of the *Journal of Domestic Appliances and Sewing Machine Gazette*.

4, AVE MARIA LANE, E.C.

SIR,—We note that you are publishing from month to month a list of the imports of sewing machines into the United Kingdom, and we should like to point out that the returns that are given, with the amounts imported by our firm, do not nearly represent the quantity of machines that we are now getting from America, for the reason that all our goods are landed by the Dock Companies; and the entries are very often passed either in the name of the Dock Company or of the lighterman.

If you will kindly insert this in your next issue you will oblige

Yours faithfully,

RENNICK, KEMSLEY & CO.

THE "ELSA" MACHINE.

To the Editor of the *Journal of Domestic Appliances and Sewing Machine Gazette*.

4, AVE MARIA LANE, E.C.

GENTLEMEN,—Will you allow me to draw your attention to a mistake in your last issue of October 1st, in which you give a list of the manufacturers of the different machines.

You state Messrs. Silberburg & Co. to be the manufacturers of the "Elsa" machine (Bishop's Cluster Co. agents.)

Above firm does not manufacture this machine, but has to buy it from the makers, Messrs. Baach & Klic, in Brunswick, who are the only manufacturers, and for whom I am the sole agent in the United Kingdom,

Yours respectfully,

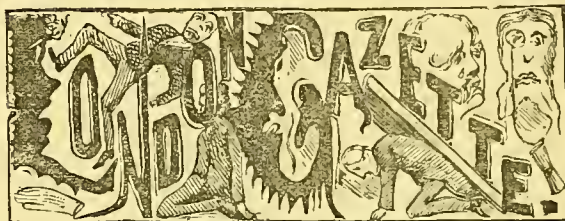
C. LOHMANN.

THE finer the polish which is imparted to the surface in case hardening the better will be the results. The art is a very useful one and should be thoroughly understood by every smith and worker in metal. The process is very simple. The articles are placed in some air-tight receptacle, generally an iron box, but often a pipe, which can be turned, and therefore admits of the more uniform application of heat. The receptacle is filled with coarse charcoal powder and exposed to a cherry-red heat for twenty-four hours if a hard surface one-eighth of an inch is desired, but from four to five will be long enough to make a good surface of steel.

SEWING MACHINES AND THEIR MAKERS.

We have received the following to add to this list:—

NAME OF MACHINE.	MANUFACTURER.	ADDRESS.
Hemstitching Machine (Bensons) ..	The Belfast Hemstitching Company	Hope Street Factory, Belfast.
Howe Companion ..	Rennick, Kemsley & Co	4, Finsbury Circus, E.C.
New Howe	Rennick, Kemsley & Co.	4, Finsbury Circus, E.C.
Queen	St. George's Foundry Co.	Birmingham.
Taylor's Patent	Taylor and Co.....	Driffield.
Westmoreland.....	Westmoreland.....	19, Station Street, Nottingham.



LIQUIDATIONS BY ARRANGEMENTS.

Makin, J. H., ironmonger, Gibraltar-street, Sheffield.

Wescott, E. G., ironmonger, Haviland-road, Boscombe, Hants.

Johnson, S., ironmonger, Cattle Market, Loughborough.

Ball, R. J., ironmonger, Alfreton-road, Nottingham.

Gibbs, J. A., ironmonger, 38A, Church-street, Croydon.

Smith, H. A., ironmonger, Chequer-street, and Hazelwood-terrace, St. Albans.

Tranter, T. R., ironmonger, Mandale-road, South Stockton.

PARTNERSHIP DISSOLVED.

Othan, M. A., and E. Johnson, ironmongers, under the style of G. Allan and Co., Kingston-on-Thames.

BILLS OF SALE.

Jones, F., ironmonger and furniture dealer, Newhall, Derbyshire, for £50, to R. Harrison. Filed September 25.

Bloor, W. E., ironmonger, (by Sheriff), 13, Luke-street, Cheetham, near Manchester, for £41 16s. 2d., to H. Davies. Filed September 14.

The various methods of making steel are as follows: Blister steel is made by penetrating the heated iron with carbon of charcoal. German-steel is blister-steel rolled into bars; sheet-steel is hammered blister-steel; double shear-steel is blister-steel cut up, put together and hammered; crucible-steel is an amalgamation of melted blister-steel; wrought or unwrought iron, charcoal and scrap; Bessemer-steel is obtained by blowing air through cast-iron, which burns out the silicon and carbon. The silicon and carbon are reduced by melting pig-iron and mixing with it scrap-steel or iron ore.

THE malleability of cast iron is secured by the abstraction of some of its carbon. As oxidizing agents, to remove the carbon, may be employed oxide of zinc, anvil scales, and brown and red hematites. The iron to be treated is placed upon a bed of such material, the space between the castings being filled up with the same; the whole is then exposed to a red heat in the oven or furnace from 24 to 96 hours. A raw material containing but little manganese and graphitic carbon should be used. White pig iron answers well. Malleable cast iron is easily filed and polished, and may be forged at a red heat.

THE VERTICAL FEED SEWING MACHINE.

Beyond dispute the only really Perfect Machine yet produced.

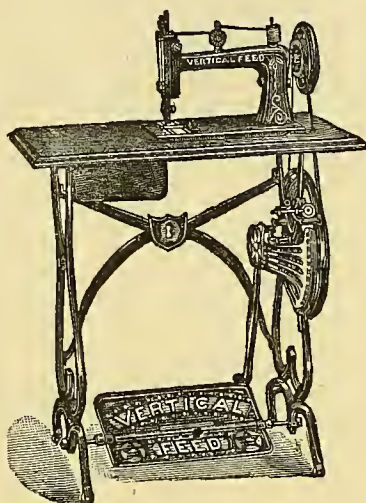
AWARDED THE
ONLY GOLD MEDAL

AT THE

SYDNEY & MELBOURNE

EXHIBITIONS,

In Competition with all the leading Machines.

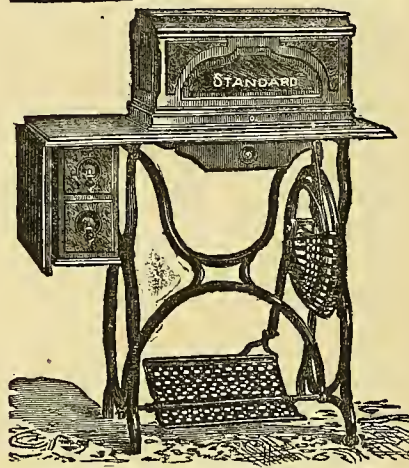


This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking, and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity, and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the Work and every information, may be obtained at the Offices of the Company,

52, QUEEN VICTORIA STREET, E.C.
SOLE ADDRESS IN LONDON.

THE
LIGHT-RUNNING
STANDARD
Has No Equal.



NONE SO SIMPLE,
NONE SO DURABLE,
NONE SO RELIABLE.

Examine it Before Purchasing any other.

RENNICK, KEMSLEY & CO.,
4 FINSBURY CIRCUS, LONDON,
ALSO,
Melbourne and Sydney.

HIRE CARDS—Sixpence per dozen, post free.—Office of "SEWING MACHINE GAZETTE," 4, Ave Maria Lane, London, E.C.

WANTED IMMEDIATELY, by the Advertiser, a Partner with moderate capital, to extend old established Sewing Machine, Bicycle, Tricycle, and General Domestic Machinery Business, and to work several good patents.—Address, by letter only, to "Partnership," the Office of this Journal.

JOURNAL OF DOMESTIC APPLIANCES

AND

Sewing Machine Gazette.

AT the present time, when so much care is given to the decoration of the home, and when our furniture is nothing if not artistic, it might be well to bring the ordinary sewing machine stand a little more in harmony with its surroundings. When placed in a lady's sitting-room it cannot be said to be in keeping with the other furniture of the room, unless it happen to be an expensive cabinet. The ordinary iron sewing machine stand is not remarkable for excellence of finish, and is certainly not "a thing of beauty and a joy for ever." Could it not be made more artistically of wood? Our American Cousins seem to

think so, and one or two firms have set about to produce stands of that material, which most certainly are more handsome than those made of iron. For manufacturing purposes, of course, we cannot do better than use the metal they are now made of; but for the room of a lady, the rich soft tones of polished ornamental wood would be an improvement on the rough iron, and be in unison with its artistic surroundings.

OUR SUPPLEMENT.

WE give as this month's Supplement a Hire Card, which we think embodies the best ideas of many that have been sent us. In another column will be found the price at which we supply these to the trade.

IMPORTS OF SEWING MACHINES DURING OCTOBER, 1883.

IMPORTS INTO LONDON.

F. Stahlschmidt & Co.	.. ..	£112
Van Oppen & Co.	.. ..	£398
H. Long .. ..	.. ..	£2,495
Horne & Crampton	.. ..	£4,871
Wheeler & Wilson	.. ..	£2,287
Becker & Ulrich	.. ..	£423
Richter & Co. ..	.. ..	£10
Newcomb & Sons	.. ..	£23
Soundy & Hornbuckle..	.. ..	£150
Gordon & Gotch	.. ..	£514
C. Atkins & Co.	.. ..	£250
Cunliffe, Yeoman & Co.	.. ..	£5
Weatherley & Co.	.. ..	£5
Rennick, Kemsley & Co.	.. ..	£200
McLean Bros. & Co.	.. ..	£12
G. Rahn & Co. ..	.. ..	£49
Cutbill, Son & Co.	.. ..	£4

IMPORTS INTO LIVERPOOL.

Langstaff & Co.	.. ..	£5
R. Bulman & Co.	.. ..	£4,285
McAndrews & Co.	.. ..	£5
M. Gandy .. ..	.. ..	£150
Howard, Taylor & Co.	.. ..	£24
London & North Western Railway Co.	.. ..	£500
Oxton & Co. .. ..	.. ..	£15
J. Temple .. ..	.. ..	£7
Richardson, Spence & Co.	.. ..	£40
Henderson Bros.	.. ..	£5
W. Carden & Co.	.. ..	£5
P. Frank .. ..	.. ..	£250
M. G. Brown .. ..	.. ..	£100
W. Penlington & Co.	.. ..	£123
Cunard Steamship Co.	.. ..	£140

NEEDLES may be tempered in masses by burning oil upon them. Saw blades and large articles generally are tempered in hot sand. The hardest articles which do not require much strength should assume a faint yellow colour. Surgical instruments, razors, and engravers' tools should be brought to a pale straw colour. Knives, cold chisels and bore bits are best tempered yellow. Chisels, shears, hammers, anvils and some varieties of saw blades should assume a dark yellow. Axes, plane irons, carpenters' tools generally, and most edge tools, should show a brownish purple. Table knives, weapons and scissors should be brought to a purple; watch springs, saws and augers take a light blue. Common saws, heavy watch springs, carriage springs, and springs generally, are tempered a blue. Articles which require strength, but in which hardness is a secondary consideration, should assume a dark blue,

A SKETCH OF THE LIFE OF MR. R. M. WANZER.

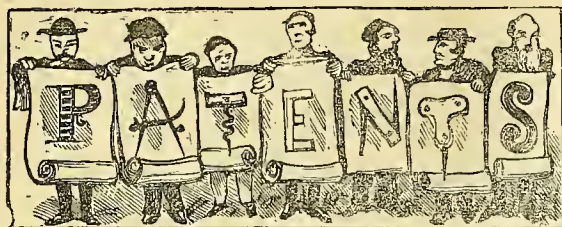
ALTHOUGH Mr. Wanzer is well known as the founder of the Canadian sewing machine industry, a brief sketch of Mr. Wanzer's life, will, no doubt, be of interest. Thirty years ago the sewing machine was invented, but then Hood's song of the shirt was as applicable as it would now seem to be the reverse, because the sewing machine was not only not a practical fact, but, to all appearances, at that time it never could become so.

The industry was but in few hands. The commonest cast-iron machines were sold at about \$110, while they scarcely worked faster than hand operating. There were, however, colossal fortunes being made through the monopoly at that time enjoyed. Mr. R. M. Wanzer, then engaged in the business in Buffalo, N.Y., undertook to oppose monopoly, and refused all overtures to rear a fortune which would be accumulated by other means than would merit the approval of a grateful public. To better carry out his views, he moved to Canada, and soon gained a high reputation as a manufacturer. To-day his improved machines are to be found everywhere, and his books of instruction are printed in thirty languages. He has carried away over two hundred first prizes in the past eighteen years, among which may be mentioned the only medal in Canada awarded last September at Toronto, and the only gold medal given at the great Centennial of 1876, besides the "Knight's Cross of Francis Joseph I. of Austria," at the Vienna exhibition, he being the only "Commandeur de la Croix" in the sewing machine trade in Great Britain and the colonies.

Mr. Wanzer has four large factories, turning out thousands of machines weekly. The demand for the Province of Quebec has warranted the establishment of a large distributing agency in Montreal, which has been placed in charge of Messrs. Willis and Co. Mr. Wanzer is sixty-five years of age, but looks about fifty. He is robust, genial and charitable. He is president of the Bible Society in Hamilton, elder of the Central Presbyterian Church; and, with the aid of his family, conducts a successful boy's home, where scores of homeless Arabs have learned to be happy.

Speaking in public, Mr. Wanzer recently said:—Sewing machines were a hobby with him, and he felt as though he could throw his whole soul into the business, and when he saw two hundred or three hundred tons of pig iron in his yard, he always thought of how that dull mass of iron could be moulded into life, an illustration of how mind has triumphed over matter.

This was their business, and it was a grand and noble work, doing away with much arduous labor that was formerly necessary. He referred to the fact that the Wanzer sewing machine has found its way into Central Africa, China and Japan, and said that the other day they had an order from Madagascar. When he first came to Canada there were only five sewing machines known to work here, while now they counted by thousands. In speaking of the work of sewing machine agents, than which there was nothing that required more patience, he counselled them not to try and sell the Wanzer machine by running down other machines, but to act honestly and deal justly, and they would have their reward. He could not tell them all the trials he went through to perfect his machine, but he thought he could fairly say that it was a good machine, and those who parted with their money for one of them got "for value received."



The following list has been compiled expressly for this Journal, by Mr. G. F. Redfern, Patent Agent, of 4, South Street, Finsbury, London, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 4403. H. J. Haddan—a communication from G. W. Gates, of the state of Michigan, United States, for improvements in carpet sweepers. Dated September 14, 1883.
- „ 4450. D. Dow, of Falkirk, Stirlingshire, for improvements in cooking ranges or kitcheners. Dated September 18, 1883.
- „ 4454. H. J. Haddan—a communication from C. A. Blomquist, T. Buskirk, and A. J. J. Machen, all of Toledo, Ohio, United States, for improvements in wrenches. Dated September 18, 1883.
- „ 4472. T. Clark, of Manchester, for improvements in the india-rubber tyres and metal rims or felloes of bicycle, tricycle, and other wheels. Dated September 19, 1883.
- „ 4477. H. J. Haddan—a communication from H. Port, of Vincennes, France, for improvements in spanners, also applicable to parallel vices, and combination tools. Dated September 19, 1883.
- „ 4478. H. J. Haddan—a communication from C. Marot, of Troyes, France, for improvements in holders for pictures and other articles. Dated September 19, 1883.
- „ 4523. W. R. Lake—a communication from S. T. Lockwood, of Chicago, Illinois, United States, Manufacturer, for improvements in machinery for turning bags or eacks after stitching, and for pressing and stacking the same. Dated September 21, 1883.
- „ 4527. R. E. Cox, of High Holborn, London, Architect, for improvements in furnaces, stoves, and grates for the purpose of controlling and maintaining slow and economical combustion of anthracite and other fuel with a minimum formation of smoke and other deleterious products. Dated September 21, 1883.
- „ 4533. B. Wesselmann, of Hamburg, Germany, Engineer, for improvements in locks. Dated September 22, 1883.
- „ 4546. G. F. Harrington, of Ryde, Isle of Wight, Gentleman, for improved cowl arrangements for ventilation. Dated September 24, 1883.
- „ 4551. T. Morgan—a communication from A. Lebert, of Ven dome, France, for improvements in apparatus for churning milk. Dated September 24, 1883.
- „ 4561. W. R. Lake—a communication from L. E. Salisbury, of Providence, Rhode Island, United States, for improvements in the manufacture of knitted fabrics and in machinery or apparatus therefor, parts of which apparatus are applicable for other purposes. Dated September 24, 1883.
- „ 4581. E. A. Brydges—a communication from J. Szesesny, of Ludwigshist, Germany, Engineer, for improvements in washing machines. Dated September 26, 1883.
- „ 4639. Marie Demme, of Mühlhausen, Thüringia, Germany, for improvements in thimbles. Dated September 29, 1883.

- No. 4642. T. J. Barnard, of Tower-chambers, Moorgate, London, Inventor and Patentee, for improvements in the means and apparatus for economizing fuel, and fully utilizing its calorific power, by securing perfect combustion and total absence of smoke. Dated September 29, 1883.
- „ 4660. A. Shardlow, of Sheffield, Engineer, for improvements in machinery for cutting files and other serrated tools. Dated October 1, 1883.
- „ 4661. H. Vaughan and J. Ball, both of Sheffield, for improvements in the manufacture of forks. Dated October 1, 1883.
- „ 4668. H. Thresher, of Brixton Rise, Brixton, London, Engineer, for improvements in velocipedes. Dated October 2, 1883.
- „ 4671. H. Serrell, of Plainfield, New Jersey, United States, for improvements in alarm bells for bicycles. Dated October 2, 1883.
- „ 4674. S. Leoni, of 66, St. Paul's-street, Packington-street, London, Gas Engineer, for improvements in gas cooking ovens. Dated October 2, 1883.
- „ 4675. F. J. Biggs, of Leadenhall-buildings, London, for improvements in latches and locks. Dated October 2, 1883.
- „ 4684. A. J. Boulton—a communication from L. J. Wing, of New York, United States, Manufacturer, for improvements in ventilating apparatus. Dated October 2, 1883.
- „ 4690. G. W. von Nawrocki—a communication from J. Hess, of Beiertheim, near Karlsruhe, Germany, for improvements in ironing boards for ironing shirt-fronts and other articles. Dated October 2, 1883.
- „ 4700. J. McDevitt, of Belfast, Ireland, for improvements in sewing machines. Dated October 3, 1883.
- „ 4704. J. Child, of Headingley, near Leeds, for improvements in washing machines. Dated October 3, 1883.
- „ 4711. H. Gamwell, of Liverpool, for improvements in sewing machines. Dated October 3, 1883.
- „ 4712. C. Pieper—a communication from R. Gritzner, of Durlach, Baden, Germany, for improvements in sewing machines with rotary hook. Dated October 4, 1883.
- „ 4730. E. Hutchison, of 51, Fann-street, London, Manufacturer, for an improved construction or arrangement of wheels for bicycles, tricycles, and light vehicles generally, with special means of securing the rubber tyre in place. Dated October 4, 1883.
- „ 4739. H. J. Allison—a communication from W. R. Perce, of Providence, Rhode Island, United States, for improvements in type writers. Dated October 5, 1883.
- „ 4747. J. W. Sutton, of High Holborn, London, for improvements in burners for burning gas mixed with hydro-carbon vapour. Dated October 5, 1883.
- „ 4753. J. Donald, of Glasgow, for improvements in washing machines. Dated October 6, 1883.
- „ 4756. F. Gill and W. Rockliffe, both of Sunderland, Engineers, for improvements in moulding and casting in metals articles consisting of two or more jointed or hinged parts. Dated October 6, 1883.
- „ 4765. W. R. Lake—a communication from C. Garnier, of Lyons, France, and P. Depouilly, of Paris, for improvements relating to the goffering or embossing of textile fabrics. Dated October 6, 1883.
- „ 4775. F. C. Glaser—a communication from G. A. Greiner, of Reichenbach, Voigtland, Germany, for improved mechanism or appliances for producing ornamental stitching in shuttle sewing machines. Dated October 8, 1883.
- „ 4784. A. Gutensohn, of Southampton-buildings, London, for an

improved process for coating the surface of iron or other metal with metallic copper, lead, zinc, aluminium, or nickel. Dated October 9, 1883.

- No. 4798. L. A. Groth—a communication from G. Fraenkel, of Berlin, Germany, for improvements in sewing machines and in apparatus connected therewith. Dated October 9, 1883.
- „ 4802. H. J. Haddan—a communication from A. H. Overman, of Massachusetts, United States, for improvements in velocipedes. Dated October 9, 1883.
- „ 4817. J. T. Sibree and T. F. Stenson, Mechanical Engineers, both of Handsworth, Staffordshire, for improvements in machinery for propelling velocipedes or other wheeled carriages. Dated October 10, 1883.
- „ 4819. J. McHardy, of Dollar, Clackmannanshire, North Britain, for improvements in sewing machines, part or parts of which are applicable for other purposes. Dated October 10, 1883.
- „ 4826. A. F. G. Brown, of Glasgow, for improvements in the grinding of the edges of tools and in the apparatus or means employed therein. Dated October 10, 1883.
- „ 4836. J. W. Simpson and J. Mc Fie, both of Rutherglen, Lanarkshire, North Britain, for improvements in forming the points of augers and in cutting the screw thread or threads thereon. Dated October 11, 1883.
- „ 4839. E. Sturge, of 27, Queen's-row, Walworth, London, Mechanician, for improved means of generating or producing motive-power for facilitating the propulsion of tricycles and other light carriages or constructions, and for driving light machinery generally. Dated October 11, 1883.

Letters Patent have been issued for the following:—

- No. 1484. W. J. Brewer, of Rood-lane, London, Civil Engineer, for an improved nut locking device. Dated March 21, 1883.
- „ 1529. W. P. Thompson—a communication from E. H. Barney, of Springfield, Massachusetts, United States, for improvements in skates. Dated March 24, 1883.
- „ 1568. J. B. Brooks, of Birmingham, Manufacturer, for improvements in the construction of saddles or seats for bicycles, tricycles, and other velocipedes, and also in the back rests for same. Dated March 28, 1883.
- „ 1582. J. H. Johnson—a communication from F. E. Vaguez-Fessart, of Paris, for improvements in cards for the reception of sewing silk or cotton thread, and other like materials. Dated March 29, 1883.
- „ 1592. L. C. Besant, of Greenock, Renfrewshire, for improvements in stoves. Dated March 29, 1883.
- „ 1599. A. F. Andreson, of 97, Abbey-road, Hampstead, London, for improvements in and applicable to smoke preventing and fuel-saving grates and stoves. Dated March 29, 1883.
- „ 1606. C. Pieper—a communication from E. Ubrig, of Moabit-Berlin, Prussia, for improvements in spring scales. Dated March 30, 1883.
- „ 1609. I. Thomas, of Aberdeen, Glamorganshire, for improvements in fire and other alarms. Dated March 30, 1883.
- „ 1671. G. T. Tuke, of 14, Gloucester-street, Sheffield, Manager in the employment of Messieurs W. Hutton and Sene, of Sheffield, Silversmiths, for improvements in attaching handles to cutlery and other articles. Dated April 8, 1883.
- „ 1703. T. C. Olney, of Manchester, for improvements in the

construction of hot water apparatus for heating buildings, and in valves to be used therewith, which valves are also applicable to other analogous purposes. Dated April 5, 1883.

- No. 1746. A. L. Bricknell, of Brixton, London, Civil Engineer, for an improvement in or applicable to certain velocipedes. Dated April 6, 1883.
- „ 1747. A. L. Bricknell, of Brixton, London, Civil Engineer, for improvements in velocipedes. Dated April 6, 1883.
- „ 1766. J. Goodson and W. Goodson, both of 213, Vauxhall-bridge-road, London, for improvements in gas regulators. Dated April 7, 1883.
- „ 1782. H. A. Walker, of 26, Prah-road, Finsbury-park, London, for improvements in window-blind rollers and parts connected therewith. Dated April 9, 1883.
- „ 1843. R. Oakley, of 235, High Holborn, London, Ventilating Engineer, for a combined deflecting and injecting exhaust roof ventilator and chimney cowl. Dated April 12, 1883.
- „ 1845. R. Oakley, of 235, High Holborn, London, Ventilating Engineer, for an improved ventilating stove. Dated April 12, 1883.
- „ 1846. R. Oakley, of 235, High Holborn, London, Ventilating Engineer, for improved appliances for ventilating churches, schools and other buildings. Dated April 12, 1883.
- „ 1858. A. J. Boulton—a communication from W. C. Seaton, of Quebec, Canada, for improvements in wick trimmers. Dated April 12, 1883.
- „ 1890. W. R. Lake—a communication from J. H. Cutten, and L. E. Moore, both of Boston, Massachusetts, United States, for an improved apparatus for sewing the soles of boots or shoes, and designed to serve as an attachment to a sewing machine. Dated April 13, 1883.
- „ 1899. E. Edwards—a communication from J. A. H. Marty, of Villefranche, France, for a new or improved trap for rats, mice, weasels, or other animals. Dated April 14, 1883.
- „ 1906. J. A. Hanna and T. F. Shillington, both of Musgrave and Company, Limited, Ann-street Iron Works, Belfast, Ireland, for improvements in stoves. Dated April 14, 1883.
- „ 1914. G. L. Scott, of Manchester, Engineer, for improvements in furnace-bars and fire-grates. Dated April 16, 1883.
- „ 2036. H. J. Haddan—a communication from J. Gutmann, of Berlin, for a new or improved attachment for shuttle sewing machines, chiefly applicable for sewing button holes. Dated April 21, 1883.
- „ 2038. J. H. Johnson—a communication from G. Bozérian, of Paris, for improvements in and connected with apparatus for washing clothes and the like. Dated April 21, 1883.
- „ 2054. J. Hargrave, of Burley, Leeds, Gentleman, for improvements in machinery or apparatus for cleaning, blacking, and polishing boots and shoes, which is also applicable to other purposes. Dated April 23, 1883.
- „ 2125. O. Pihlfeldt, of Redcar, Yorkshire, Mechanical Engineer, for improvements in tricycles and other velocipedes. Dated April 26, 1883.
- „ 2126. F. H. Atkins, of 62, Fleet-street, London, Civil Engineer, for improvements in apparatus for filtering water and other liquids. Dated April 26, 1883.
- „ 2383. S. Lowe, Machinist, and J. W. Lamb, Manufacturer, both of Nottingham, for improvements in knitting machinery. Dated May 10, 1883.
- „ 2881. H. H. Leigh—a communication from Société des Foyers

économiques Goujet et Company, of Paris, for improvements in and appertaining to fire-grates. Dated June 9, 1883.

- No. 2947. D. Poznainski, of Mount Pleasant, Clerkenwell, London, Tin Plate Worker, for improvements in spirit cooking stoves or lamps. Dated June 13, 1883.
- „ 3028. A. G. Brooks—a communication from R. Whitehill, of New York, United States, for improvements in sewing machinery. Dated June 19, 1883.
- „ 3125. J. Sidaway, of Halesowen, Worcestershire, Manufacturer, for improvements in the manufacture of spades and shovels. Dated June 23, 1883.
- „ 3154. J. McIntyre Shaw, of Glasgow, for improvements in cooking ranges. Dated June 26, 1883.
- „ 3549. J. Heselwood, of Leeds, Leathern Belt Manufacturer, for improvements in washing machines. Dated July 19, 1883.
- „ 3577. C. F. Bally, of Schoennuwerd, Switzerland, for an improved mode of producing embroidery. Dated July 20, 1883.
- „ 3728. J. S. Muir, of Highgate-road, London, for improvements in burners and in apparatus connected therewith. Dated July 31, 1883.
- „ 3747. W. R. Lake—a communication from W. J. Mc Fighe, of Pittsburg, Pennsylvania, United States, for an improved nut-lock. Dated July 31, 1883.

PATENTS WHICH HAVE BECOME VOID:—

- No. 3663. J. C. Mewburn—a communication from L. M. A. Couchoud of Marseilles, France, for a new apparatus for boiling or cooking eggs. Dated September 9, 1880.
- „ 3688. H. L. Wilson and J. Clegg, of Atlas Works, Clayton-le-Moors, Lancashire, Washing Machine Makers, for improvements in springs for washing, wringing, and mangling machines. Dated September 10, 1880.
- „ 3697. J. Parker, of Manchester, Engineer, for improvements in or applicable to fuel economisers. Dated September 11, 1880.
- „ 3715. S. Chatwood, of Cannon-street, London, Safe and Lock Engineer, for improvements in tricycles and like vehicles. Dated September 11, 1880.
- „ 3720. H. J. Haddan—a communication from P. T. y Puig, of Barcelona, Spain, for improvements in liquid meters. Dated September 13, 1880.
- „ 3725. W. Webster, of San Francisco, United States, and temporarily of New Wortley, Leeds, for improvements in sewing machines for stitching sacks, bags, ships' sails, carpets, and for other like purposes. Dated September 13, 1880.
- „ 3735. W. H. St. Aubin, of Willenhall, Staffordshire, Pattern Maker, for improvements in locks and latches. Dated September 14, 1880.
- „ 3744. M. Webb, of the Junior Garrick Club, Adelphi-terrace, London, for improvements in bicycles, tricycles, and other vehicles for self-propulsion, which improvements are also applicable to other purposes. Dated September 14, 1880.
- „ 3748. C. H. Onions, of Queen-street, Wolverhampton, Staffordshire, Metal Broker, for improvements in the construction of annealing boxes and pans. Dated September 15, 1880.
- „ 3770. E. Fitch, of Fetter-lane, London, for an improved method of and apparatus for cooling or warming milk. Dated September 17, 1880.
- „ 3774. F. W. Schwarzbach, of Naumburg-on-the-Gaale, Prussia, for an improved self-acting needle for knitting machines. Dated September 17, 1880.

- No. 3781. H. Sharrow, of Smethwick, Staffordshire, Machinist, and T. King, of Birmingham, Butcher, for improvements in machinery for the manufacture of nails and spikes. Dated September 17, 1880.
- „ 3814. T. Fletcher, F.C.S., of Warrington, Lancashire, for improvements in gas ovens for cooking purposes. Dated September 20, 1880.
- „ 3825. R. Neville, of Butleigh-court, Glastonbury, Somersetshire, for improvements in kitchen ranges. Dated September 21, 1880.
- „ 3831. G. A. Dallas, of Bethnal-green-road, London, for improvements in folding chairs. Dated September 22, 1880.
- „ 3835. C. C. Parker and S. B. Parker, of Brooklyn, New York, United States, for improvements in spring scales. Dated September 22, 1880.
- „ 3886. E. S. Shrubsole, of Maidstone, Kent, for an improved self-closing hinge. Dated September 25, 1880.
- „ 3890. W. Morgan-Brown—a communication from E. S. Boynton, of Bridgeport, Fairfield, Connecticut, United States, for improvements in machinery for sewing books. Dated September 25, 1880.
- „ 3893. J. Russell, of Neath, Glamorganshire, for improvements in or connected with domestic fire-places for increasing draught and preventing smoke in same. Dated September 25, 1880.
- „ 3909. W. Standing, of 4. Nassau-street, Dublin, Ireland, Gas Engineer, for improvements in and relating to apparatus for heating water for domestic and other purposes. Dated September 27, 1880.
- „ 3910. H. Woodward, of Regent's-park, London, for a new or improved combined knife cleaning and sharpening machine. Dated September 27, 1880.
- „ 3915. A. M. Clark—a communication from E. L. Wood, of Eastland City, Texas, United States, for improvements in blacking brushes. Dated September 27, 1880.
- „ 3935. A. M. Clark—a communication from A. M. Da Costa, of Brooklyn, New York, United States, for improvements in type-writing machines. Dated September 28, 1880.
- „ 3972. T. Ivory, of Edinburgh, Advocate, for improvements in apparatus for heating air. Dated October 1, 1880.
- „ 3987. C. W. Torr, of the firm of R. W. Winfield and Co., of Birmingham, Merchants and Manufacturers, for improvements in lamps for burning paraffin oil and other volatile oils. Dated October 1, 1880.
- „ 3991. A. Mac Phail, of 43, Cannon-street, London, for improvements in kitchen ranges. Dated October 2, 1880.
- „ 4006. F. J. Henderson, of King's-Cross Road, London, for improvements in waste-water preventers and valve cocks. Dated October 2, 1880.
- „ 4018. J. M. Smith, of West Bromwich, Staffordshire, and of London, for improvements in and relating to exercising apparatus analogous to bicycle or velocipede riding, and for recording or registering the equivalent to the mileage or distance performed. Dated October 4, 1880.
- „ 4025. G. Browning, of Glasgow, Engineer, for improved attachments for sewing machines. Dated October 4, 1880.
- „ 4027. B. J. B. Mills—a communication from E. E. Furney, of St. Louis, Missouri, United States, Mechanical Engineer, for apparatus for checking the waste of water. Dated October 4, 1880.
- „ 4037. L. Aviss, of Gosford-street, Coventry, for improvements in velocipedes. Dated October 5, 1880.
- „ 3598. H. Horton, of 7, Finsbury-street, London, Gasfitter, for

improvements in globe holders, suitable for gas and other lamps. Dated September 14, 1876.

- No. 3655. W. Foulis, of Glasgow, Civil Engineer, for a new or improved gas governor. Dated September 19, 1876.
- „ 3845. W. C. Stiff, Merchant and manufacturer, and A. Bowen, Mechanical Engineer, both of Birmingham, for improvements in machinery for the manufacture of screws. Dated October 4, 1876.
- „ 3875. J. C. Garrood, of Fakenham, Norfolk, for improvements in the construction of bicycles and other velocipedes. Dated October 6, 1876.

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„ 489. J. A. B. Bennett, J. Herd, and B. P. Walker, heating and cooking stoves..	0	2
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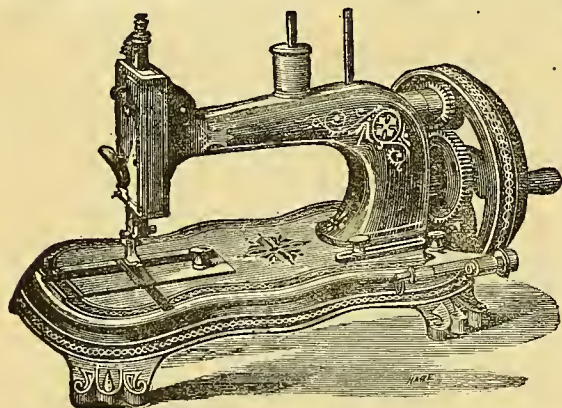
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„ 806.	H. Kiddier, apparatus for the manufacture of knitted loop fabrics ..	0	10
„ 810.	J. Russell, gas cooking stoves ..	0	2
„ 812.	H. Thompson, construction of domestic stoves and grates ..	0	6
„ 838.	C. Hinksman, machinery for beating, cleaning, and brushing carpets, &c. ..	0	10
„ 861.	H. Devine, pillar, door, and other letter boxes ..	0	2
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„ 917.	D. M. Ford, bread-loaf cutter..	0	6
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„ 1008.	J. A. Lamplugh, saddles of bicycles, tricycles, &c. ..	0	8

THE complaint is made that the question of economy in cost and excellence of quality are neglected in most establishments combining machine shop and foundry. With regard to fuel, for instance, the notion has prevailed in most Eastern shops that coke is too expensive. It is said, however, that in several shops where it has been tried recently, that it has a decided advantage over anthracite coal. Coke is a common foundry fuel in many parts of the West; in Cleveland, for instance, first-class machinery castings are produced at $2\frac{3}{4}$ to 3 cents per pound, the same selling in Chicago and throughout the East at a cent per pound higher.

A METHOD of cleaning brass by the following process is recommended by a mechanical authority: Rub the surface of the metal with rotten stone and sweet oil, then rub off with a piece of cotton flannel, and polish with soft leather. A solution of oxalic acid rubbed over tarnished brass soon removes the tarnish, rendering the metal bright. The acid must be washed off with water, and the brass rubbed with whiting and soft leather. A mixture of muriatic acid and alum dissolved in water imparts a golden colour to brass articles that are steeped in it for a few seconds.

L A W.

THE "HIRE SYSTEM" IN SEWING MACHINES.—George Reynolds, herbalist, 39, Chief-street, Orsdeal-lane, was charged on the 27th September, at the Salford Borough Court, with the theft of a sewing machine, which he had obtained from the Singer Sewing Machine Company, as bailee on the hire system. Mr. W. Bennet appeared to prosecute on behalf of the Company. The prisoner whilst living at No. 6, South Short-street, Trafford-road, was waited upon by Mr. Timothy Devine, an agent of the Company. The prisoner said he was in want of a machine, but wished to purchase it on the hire system. Devine explained the conditions of the agreement which he would have to sign, and Reynolds said he would call at the depot of the Company in Cross-lane. He did not, however, call, and Devine called again at South Short-street and agreed with prisoner's wife to supply a machine. On the 8th a seven guinea machine was delivered, and the prisoner signed the usual agreement when machines were sold on the hire system. He should have paid 10s. deposit, but the prisoner's wife said her husband had not drawn his wages, but would pay the 10s. in two instalments of 5s. each within a week. When, however, the Company's collector called at 6, South Short-street, he found that the prisoner had removed, and after considerable trouble found him residing at 39, Chief-street, Orsdeal-lane. It was then discovered that the prisoner had, four days after he purchased the machine, sold it to Elizabeth Rothwell, Broker, 306, Regent-road, for £2. He represented to Mrs. Rothwell's assistant that his name was James French, that he had purchased and paid for the machine, and produced a settled bill purporting to be for a sewing machine for £7. The prisoner said he understood he had purchased the machine in the ordinary way, and had the power to sell it. He was committed for trial at the Salford Sessions, and admitted to bail in two sureties of £25 each.



PRICE £4 4 0.

THE LITTLE "BRITANNIA" SHUTTLE HAND MACHINE (SINGER SYSTEM).

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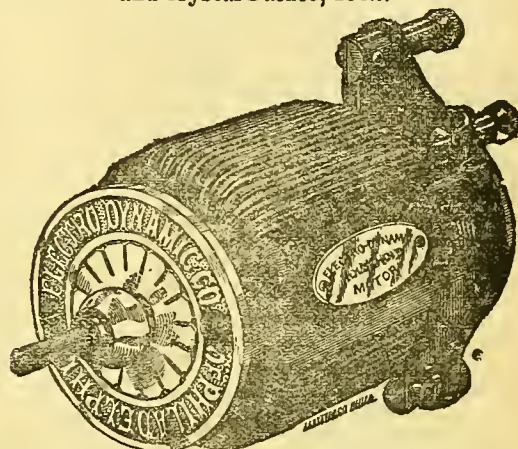
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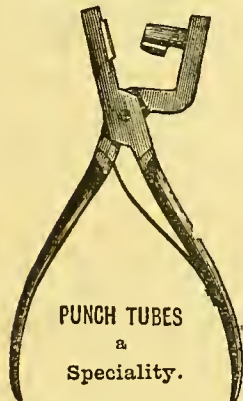
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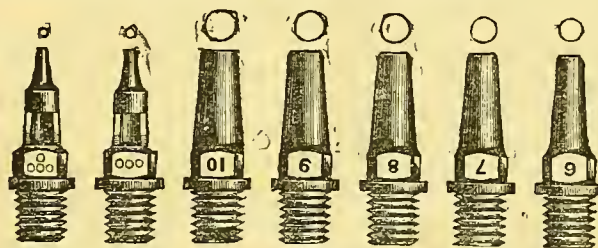
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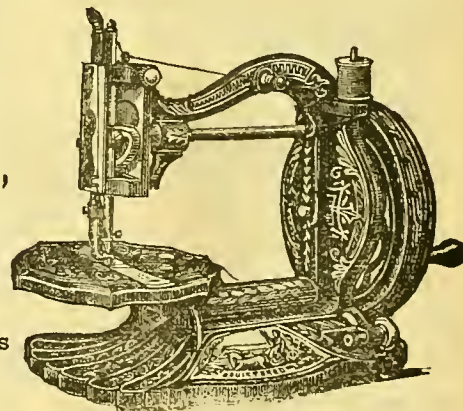
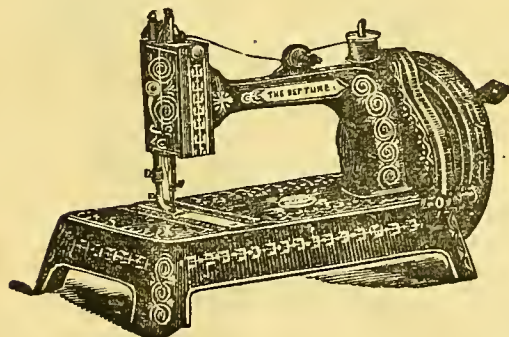
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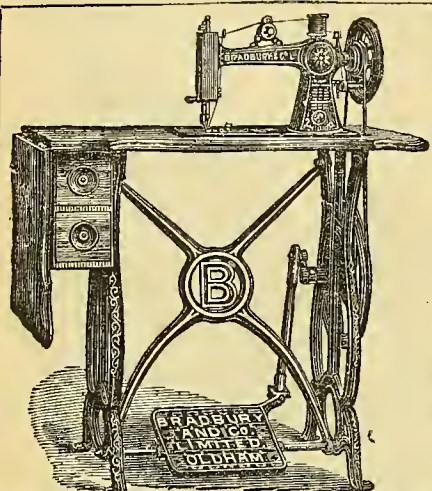
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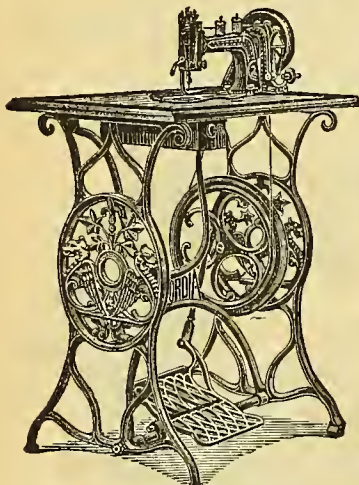
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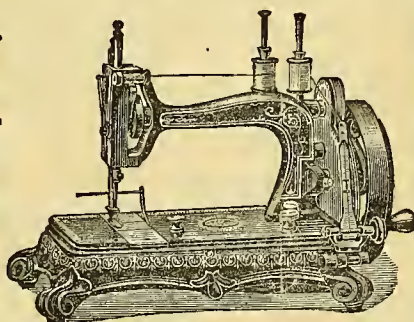
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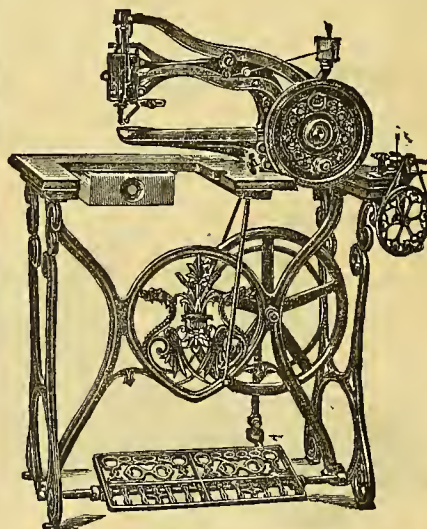
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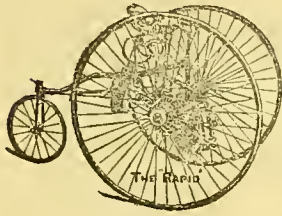
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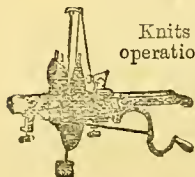
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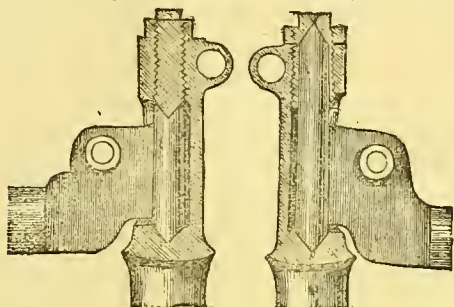
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Glasgow, Queen's Park.—The Two Miles from scratch, by Lamb, of Edinburgh.

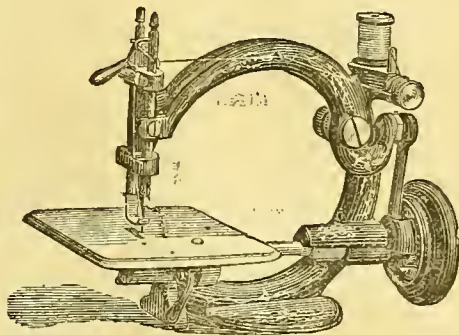
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Vol. XI., No. 161.

DECEMBER 1, 1883.

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Assuring you that the same care and promptitude will be exercised as heretofore in all matters with which you may be pleased to favour the new Firm, which will still have my personal supervision,

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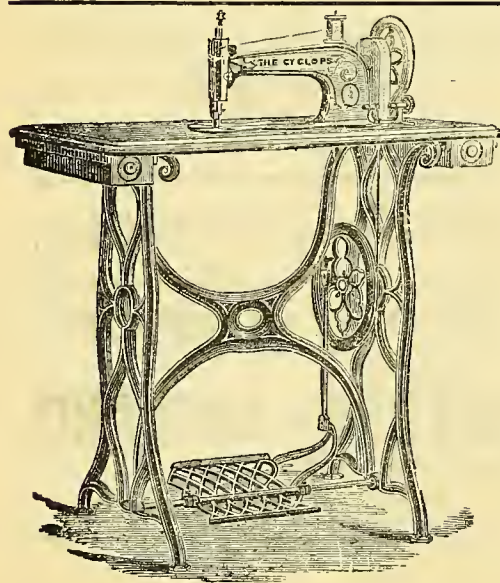
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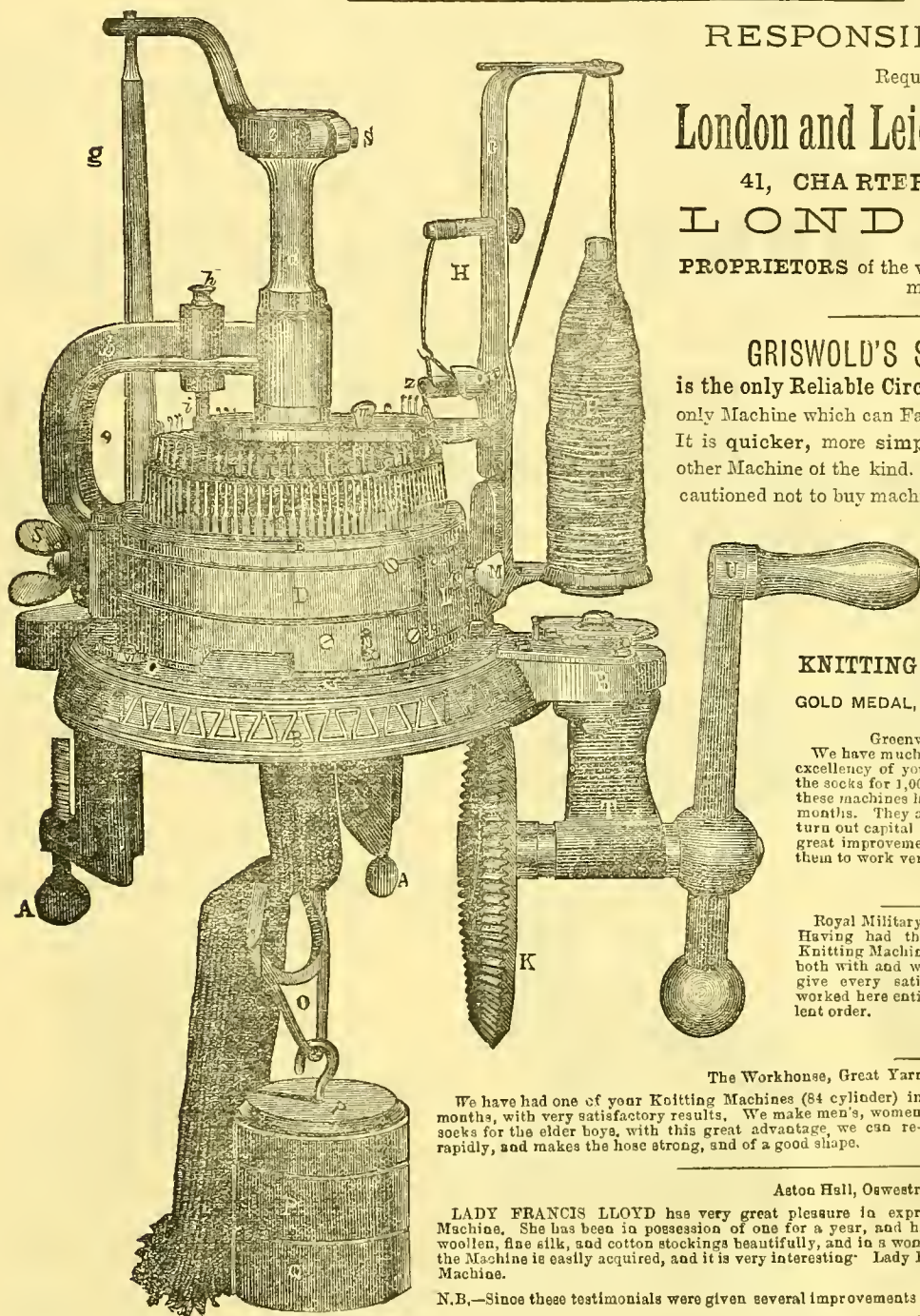
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(Signed) E. M. ROE.
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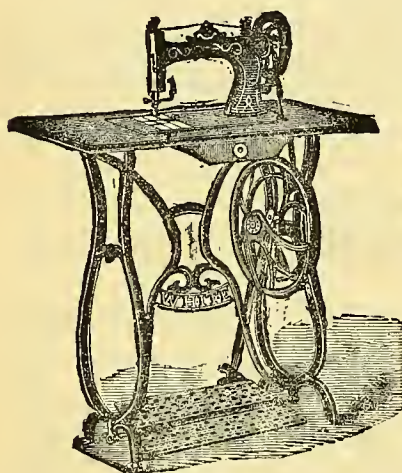
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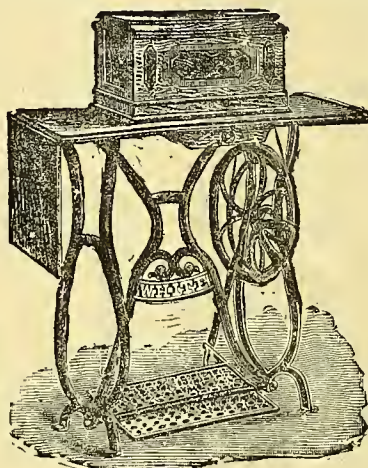
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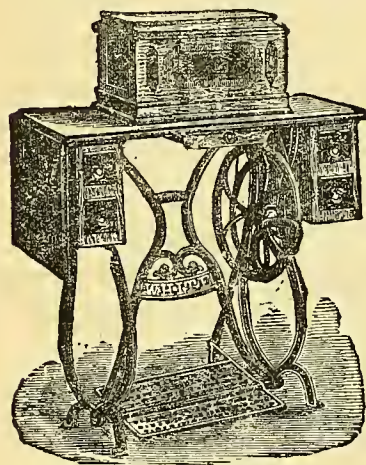
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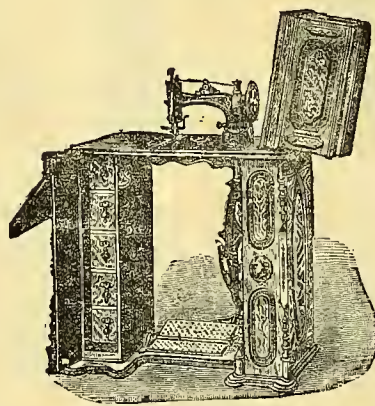
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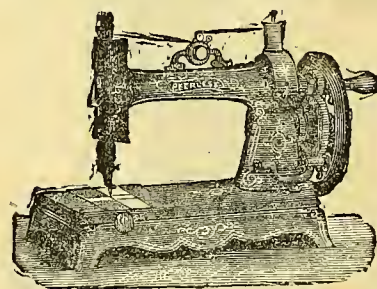
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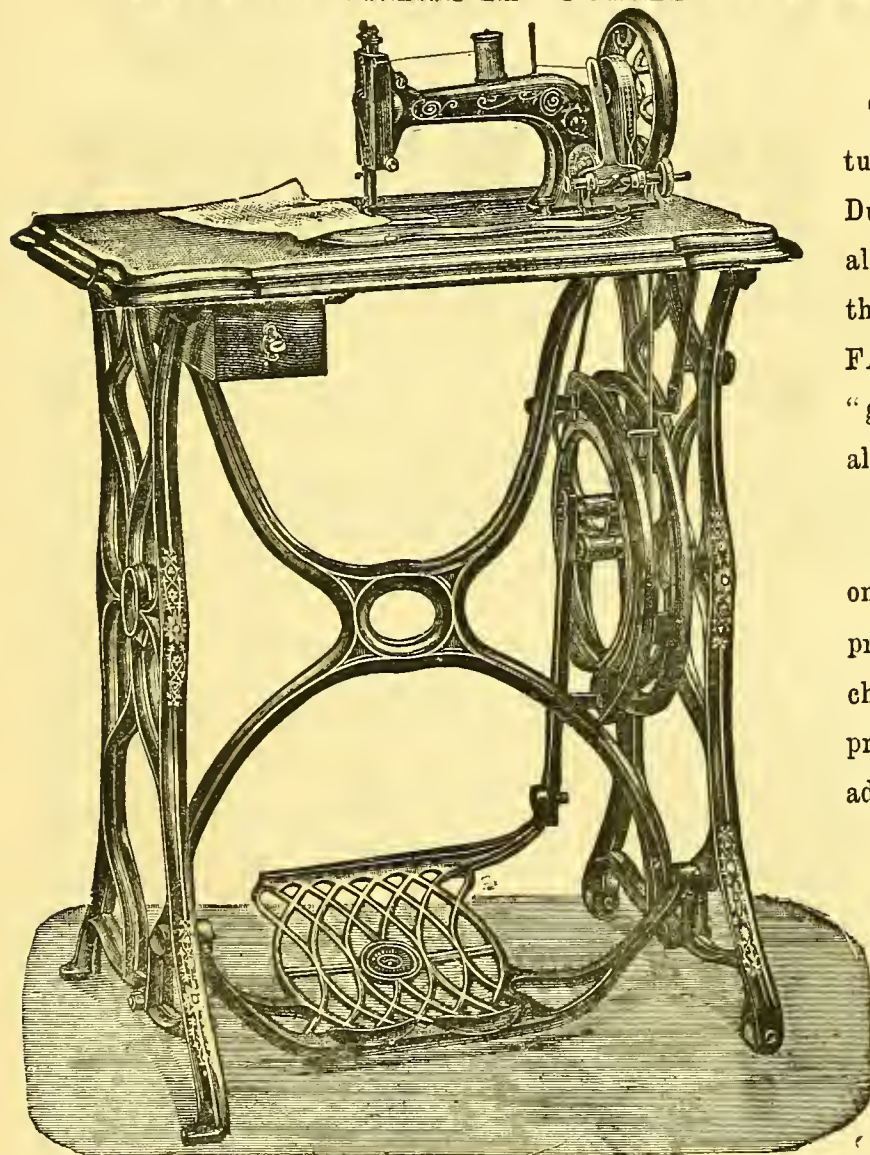
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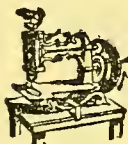
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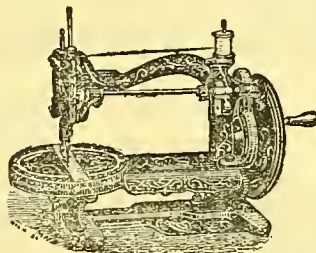


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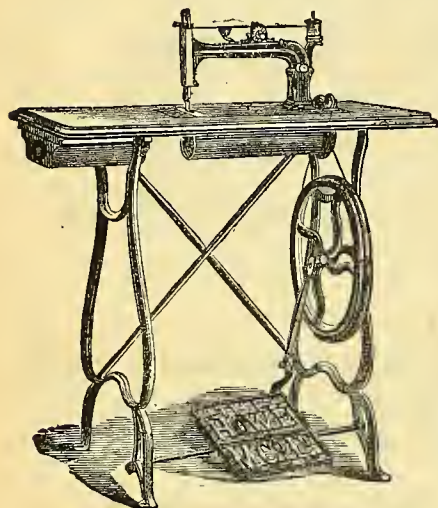
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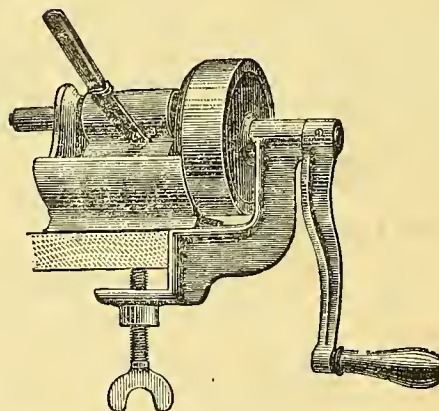
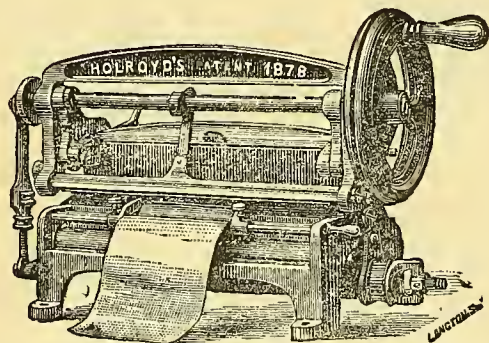
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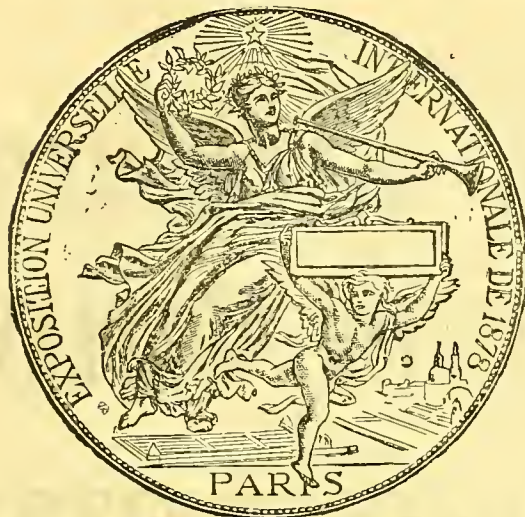


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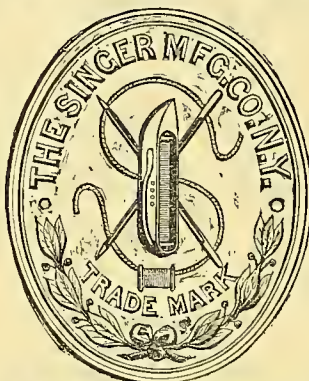
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TO THE MACHINE

near the

BALANCE WHEEL,

and also cast

in each side of the Stand.

TO AVOID DECEPTION,

Buy No Machine

WITHOUT THE ABOVE TRADE MARK,

AND SEE ALSO THAT THE COMPANY'S

TRADE NAME 'SINGER' IS UPON THE ARM OF THE MACHINE.

The Singer Manufacturing Company,

(Formerly I. M. SINGER & CO.)

CHIEF OFFICE IN THE UNITED KINGDOM:

39, FOSTER LANE, CHEAPSIDE, LONDON, E.C.

And 400 Branches in all the Principal Towns of Great Britain and Ireland.

SEWING MACHINES AT A CLOTHING MANUFACTORY.

THE public will, we think, be interested in learning some particulars of a model factory in which all the conditions of production are pretty nearly diametrically opposite to those which usually obtain. The mere statement of the facts of the case, if space permitted their narration, would seem very like an industrial romance. What, for instance, would sound more like the conception of a novelist than to talk of a gentleman of ancient family, whose ancestors before the Conquest held the Salopian manor from which he takes his name, becoming, to use his own language, "the first of his breed to enter trade," and deliberately choosing the manufacture of clothing as the most promising means of profitably employing his capital, and of gratifying a desire to improve the condition of the working classes by providing increased employment for women? It would appear equally unlike stern matter of fact to say that, having a power of adapting means to end, and a capacity for organisation amounting to genius, he has carried his scheme into execution, and that having had seven hundred women and girls fully employed for over two years, a forthcoming report of the Factory Inspector of the district will call public attention to an experiment which seems to mark an epoch in industrialism, and to set an example worthy of general imitation. The gentleman in question is Mr. Richard Stanway, and his establishment is at Enderley Mills, Newcastle-under-Lyme, Staffordshire. As, when he started, he knew nothing of the trade he had taken up, it required long and patient study to determine how organisation and the best machinery could be combined with female labour to effect a greater economy of production than had yet been attained. He set to work, and soon acquired a local reputation for the production of the best articles of clothing, and especially for uniform clothing for police, railway officers and servants, for volunteers and Militia. The recommendation of such of his aristocratic acquaintances as had not cut him dead, and the excellence of some staff uniforms for Militia produced at his works, brought him to the notice of the War Office authorities, who three years ago had determined, in consequence of recent revelations as to the infectious conditions of the dwellings of the poor people employed in making Army uniforms, that for the future all the work should be done in the contractor's own factory, which was to be at all times open to official inspection. A trial order of a few hundred uniforms was executed so much to the satisfaction of the Director of Contracts that Mr. Stanway was invited to undertake army work under the new conditions. This involved erecting and organising a new factory, providing and training a staff of operatives, and assuming so large an amount of responsibility that he hesitated, and would have declined the offer, if it had not at the same time afforded him the opportunity of gratifying his earnest desire of erecting a model building after his own designs that would demonstrate unequivocally the soundness of his economical projects.

Mr. Stanway's view of the situation was this. He had secured a footing at the War Office, but he knew that he would have to compete against some of the largest contractors in the world, whose opposition would be stimulated by jealousy of a new comer, and he was well assured that he should only be able to retain his position by fairly establishing a claim to superiority. To do this he must be

aided by every mechanical appliance in advance of those used by his rivals, and for his work to be better his operatives must be stronger, brighter, more cheerful, or, in a word, more healthy than those in any other factory. To secure these essential conditions, it was necessary that they should work in a place where the light was perfect, where the air was perfectly pure, where the sun could exert its beneficial sanitary and illuminating powers without causing inconvenience in summer by its direct rays. There must be no dark corners, no shade, for, in his view, shade means dampness, impure air, and *pro tanto*, diminished health and vitality, injuriously affecting the health and spirits of the workpeople. Instead, therefore, of copying the mills about him, and putting up a dismal five-storeyed brick building, the very sight of which has a depressing effect on all but those inured by custom to regard its melancholy ugliness with indifference, Mr. Stanway has included the floor space which the five storeys would have given him in one grand cheerful apartment of over an acre in area, raised only a few feet above the foundation of solid, red sandstone rock on which the new building is erected. The first sight of this magnificent hall excites astonishment, followed by an admiration which goes on increasing as the visitor is made acquainted with the profound judgment which has been displayed in the design, and with the complete success with which all the objects aimed at have been attained. The length of the building lies due east and west, and it follows, therefore, that as the northern faces of the roof ridges are glazed while those facing to the south are slated, there is always a perfectly steady light during the day time, direct sunshine being excluded, except for a short time in the height of summer at so early an hour that work is not being carried on. The inner side of the slated roof ridges are ceiled, with an open space left between the two surfaces. Radiation of the sun's heat is thus minimised in the summer, and a free communication is effected with the outer atmosphere through grids, which, while preventing draughts, are formed to carry off the vitiated air from the inside. A comfortable temperature is maintained in winter by the circulation of steam to and from the boiler which supplies the necessary power. The steam pipes pass below the floor, in which open gratings are laid to allow the warmed air to pass upward into the apartment. No better test of the efficiency of the sanitary provisions can be furnished than the healthy, cheerful appearance of the women and girls, but a further voucher is furnished to the visitor by his own sensations. On entering from the open air he finds himself in presence of seven hundred people, actively employed, with thousands of woollen garments in course of manipulation, and piles of woollen cloth being stretched out and piled up into strata fifty yards long, and a foot in thickness, while similar strata are being dissected with marvellous rapidity into the component parts of coats, but there is no appreciable odour of the faintest kind, and the only change of which he is conscious is that of a comfortable rise in the temperature. The eye is first caught in this scene of well-ordered activity by four lines of good-looking, lady-like girls, dressed in scarlet close-fitting jackets, with bright metal buttons, standing up and apparently contemplating with considerable interest a sort of iron arm that projects in front of each from the centre of the long ranges of counters at which they are placed. One is conscious of a suppressed "whirring" noise, like that made by a flushed partridge, but it takes some little time to realise that the projecting iron arms are a hundred sewing

machines capable of running at the rate of two thousand stitches per minute, and that the gaily-clad damsels who are stooping over them in so great a variety of attitudes are engaged in skilfully navigating the pieces of cloth which in combination are to form the great coats of British infantry and the capes of British cavalry.

Though driven by power at a velocity three hundred per cent. higher than has ever before been dreamed of, there is no sign of shafting or belting anywhere to be seen. These are beneath the floor, and as the slight cord that connects with the machine is boxed in, while the movement of the needle is so rapid as to appear motionless—though the sewn seam is all the while growing with startling rapidity—there is an uncanny appearance of mystery about the thing, at first sight, that calls imperatively for explanation. This is first afforded by pointing out a little pedal which passes through the floor close to the foot of the operator, and a clue to the mystery is at once furnished on seeing that the moment she removes her foot from this the machine is thrown out of gear and comes to stop; while the slightest pressure starts it, increased velocity responding to increased pressure, until, when the pedal is level with the floor, the full two thousand revolutions per minute are attained. Between each of the two double rows of machinists there are transverse counters and stands separating the long spaces into compartments, and in each of these there is an "inspector" dressed in a blue jacket to distinguish him from the machinists, and to notify that he occupies a position of responsibility. Through these inspectors' hands every seam sewn by the squad of machinists in their compartment has to pass, and any defective work—the defect taking the form of departure from the War Office standard of nine stitches to the inch—is pointed out to the delinquent, ripped, and has to be reinstated by her, without pay. Though movement in the vast room is general and incessant, one is immediately conscious that it is proceeding with the most orderly regularity, and is soon able to see the channel in which the stream of production flows; the entrance of bales of cloth at one end, to the departure of the finished uniforms at the other. It meanders, but there are no eddies or backwaters, for the movement is ever onward. Every operation has been worked out to the greatest nicety and simplicity, one person doing but one thing, and never leaving the place appointed for that one thing to be done.

All transport and locomotion is carried on by little girls called "carriers," who, aided by light trucks, move the cut garments, and bring them to the operators, finally wheeling them off in the completed state into store. Some of the carriers are wholly engaged in collecting the shreds from the four cutting tables, where revolving ribbons of steel, kept constantly keen as razors by friction against emery wheels, cut up from fifty to ninety thickness of cloth by the acre. From these cutting tables the component parts of the garments go to an adjoining table for "shading," "sizing," and "marking," to prevent the possibility of mistake when they come to be sewn together. Thence the carriers transport them to the "basters," mostly young girls and old women, from whom they are wheeled by the truck load to the machinists. When the seams are sewn they proceed to the "pressers" to be flattened. This is an operation which, when performed by hand, requires the strength of a man; but at this remarkable factory, where the whole order of things is reversed, mere children are able to direct the garments between two

revolving hollow iron wheels. One of these is kept heated internally by jets of gas, and furnishes the necessary degree of temperature for the purpose, without any variation; while the other gives a pressure which effectually "presses" the seam without the necessity for a second application. The garment next goes to the "button-holers," a department that involves passing through four pairs of hands. One girl marks the holes from a metal template, according to the size of the garment. The second punches out a little disc at the end of the line; a third cuts the length of the hole with a single blow of a mallet on a suitable cutter, and then it is ready for the needlewomen. This part of the work is all done by hand, for though there are many button-hole machines in the market none of them have been found capable of work that will stand the friction of the metal buttons, which are regarded as a *sine qua non* in all uniforms, military and civil. After button-holing, the uniform goes into the hands of the "finishers," half-a-dozen of whom have to make some little additions before it is finally submitted to the eye of an old soldier, who has been trained at the Government Clothing Factory, Pimlico, and whose duty it is to see that it is made according to regulation, and that it will pass Government inspection and be received into store.

The idea which has guided Mr. Stanway in developing his novel scheme of organisation is that the principle of the division of labour had never been pushed, at least in the clothing trade, to anything like its effective economic limit. Some idea of the progress he has made in this direction may be gathered from the fact that, whereas in other factories a garment is manipulated by the cutter, the baster, the machinist, the finisher, and the presser, he has so subdivided each of these divisions that in his factory there are over forty distinct operations to complete a garment each performed by a different person. From repeated performance of the same simple operation on the same part of a garment, each operative becomes a specialist, and acquires an extraordinary skill, facility, and rapidity of execution. All the brain work has been exercised in evolving and perfecting the scheme of work, leaving little to the workers but to acquire the necessary skill and facility in carrying on the simplest mechanical operations; every facility is afforded to learners, and very young girls are allowed to commence as basters, being liberally paid from the first according to the results. There is, of course, considerable ambition to rise from the lower to the higher ranks, the great object of aspiration being to don the smart uniform of the machinist and to acquire their large earnings. The net result of Mr. Stanway's scheme is that he claims to have quadrupled his power of production, and to have so diminished its cost that he is able to produce a given result at one third less than any of his competitors. One of these, a member of the largest clothing firm in the country, bore testimony to the perfection of the arrangements at Enderley Mills, by declaring after he had been over them that they were a hundred years in advance of the establishment of any one else in the trade.

So far from this result being attained by any undue strain on the operatives, or any attempt to cut down their earnings, it is Mr. Stanway's special pride that they are better paid and less worked than in any other clothing factory in the country. He contends, speaking from his own experience, that short hours of labour are an essential condition of obtaining the maximum amount of effective

work out of a healthy person, and that more and better work will be done, averaging the year through, in a day of eight hours than by any longer hours of labour. As the result of this conviction Enderley Mills are run from 8.0 a.m. to 6.30 p.m. in the summer, with two hours, in three intervals, for meals and rest; and from 9.0 a.m. to 5.30 p.m. in the winter, with a hour and a half, also in three intervals, for rest and refreshment. All labour is performed on the piece-work, or payment by results, principle, to the perfect satisfaction, apparently, both of employer and employed. The average earnings of the adult workpeople vary from 15s. to 20s. per week, the machinists and finishers getting the highest wages. From the list of winners of prizes given at Christmas to those who had earned the highest amount in their respective classes during the year the best finisher was put down as having earned 32s., the best machinist, 27s.; and the best button-holer, 27s. 3d.; a little girl of 13 was credited with 8s. 9d. for sewing on buttons, and the best baster had earned 17s.

There have been no disputes on the subject of wages, for Mr. Stanway, before accepting any contract, takes a few of the leading people in each department of work into counsel, and gets from them an estimate of the cost of the work. On one or two occasions, where it has been a question of cutting close to enable him to tender successfully against antagonists who were willing to work at no profit, or even at a loss, the workpeople, appreciating the situation, cheerfully met him by agreeing to work at lower prices than usual, and there has never been an occasion on which they have not, after fair representation and explanation, admitted the reasonableness of decisions going against themselves. The condition of harmony and mutual confidence which seems now to be firmly established has not been the product simply of Mr. Stanway's consideration for their health and comfort while at work. His care for their well-being goes far beyond that. As part of the building he put up a fine dining-room capable of accommodating three hundred people, with suitable kitchen, provided a matron, and encouraged the formation of a committee to buy all provisions by contract wholesale, and then to prepare the meals under the supervision of the matron by a cookery class of the girls themselves, who take it in turns for a week, receiving valuable instruction in the selection and preparation of food and in household management, while providing excellent meals at cost price. Every employee in the mill contributes one penny a week to the Medical Department, receiving in return all medical attendance and medicine free, the surgeon being in attendance in a well-found surgery every day, where he finds a "Daily Sick Report" awaiting him, followed soon after by the matron with all the patients. For this same modest subscription out-door patients and married women during confinement are attended, and have all medicines and other necessities provided for them during their illness. For the benefit of married women, also, a *creche* is open at the entrance of the mill, where children can be left in charge of a matron while they are at work. It consists of two rooms—one *creche* proper, for the larger children to play in, and the other a cot-room, with a dozen cradles, which are gently rocked by machinery. At present Mr. Stanway is considering a scheme to provide perambulators for women who, living some distance from the mill, have to carry their offspring backwards and forwards, tiring themselves often before the day's work commences. Under proper regulations, and by means of a pass from

the inspector of the division in which she is employed, the nursing mother slips away from her work for ten minutes occasionally to minister to the wants of the juvenile tenant of the cot-room.

Stimulating thrift has always been steadily kept in view, and soon after the opening of the mill a Post-office Savings Bank was started. Mr. Stanway promised to buy the bank-book—cost sixpence—for every girl who would open an account and deposit regularly, and the first day of the experiment cost him fifty shillings. Since then the Post-office Savings Bank has been open at the mill every pay-day, and, as the clerks' office faces the pay-room, many are induced by the proximity to deposit money which might not otherwise go to the credit of savings at all. The result has been very satisfactory, but it is to some extent interfered with by the practice, which the example organisation about them has induced, of forming clubs amongst themselves. No less than fifteen of these are said to be in operation, and two thousand pounds was paid into them, the girls electing their own treasurers and officers, to whose credit be it said, not a penny has ever been misappropriated. The nature of the work and the wide-spread reputation which Mr. Stanway has acquired has led to girls of a very superior class to ordinary factory operatives seeking his employment. Perhaps their estimate of him cannot be more concisely stated than by saying that they look up to him so much *in loco parentis* that scarcely a week passes in which he is not confidentially consulted whether it would be wise to accept an offer of marriage. If he cannot induce the girl to take the advice of her own family or relations, he takes the trouble to make inquiries about the character of the young man; when those inquiries are satisfactory, he communicates the result to the girl, and a wedding follows in due course, one of the Girls' Clubs providing the bride's trousseau; when they are unsatisfactory, the decision is accepted and the girl goes back to her work, and takes her chance of some one better turning up. Applications are not unfrequently made to Mr. Stanway to recommend one of his girls for a wife, the compliment being paid him of declaring "all his girls are good ones." Such an application from a "Butty" collier, a man earning £4 to £5 a week, who was able to refer to the minister of his parish for a character, is now awaiting a reply. Assuming the reference to prove satisfactory, the usual course will be adopted of turning over the matter to the manageress; she will call together the heads of the different departments, who will compare notes on the subject of the eligible girls, and the result, no doubt, will be the satisfaction of the expectant Butty's desires.—*Standard*.

NETTLEFOLD'S SCREW, WIRE AND NAIL WORKS.

THESE works, situated at Birmingham Heath, are the most extensive in existence, turning out no less than 200,000 gross of screws a week. About 200 tons of iron made at Wellington, in Shropshire, is drawn into wire in one week. As being the largest screw manufactory in the world, and the one best exemplifying the most recent applications of automatic machinery to the making of screws, some account of these works may perhaps be interesting to our readers.

In making the "blank" for the future wood screw, the wire of different sizes is fed cold into a machine, which not

only cuts a piece off to the length required, but also forms the head, whether cupped or of the ordinary conical shape. The dies for the countersunk heads are formed of square pieces of steel plate with half the hole and countersunk portion taken out of each of the four sides, so that two plates together are required to make the head; but, as there are four half-holes in each plate, one pair of dies can be changed four times before being worn out. When the head is formed, the dies are drawn apart by an automatic arrangement and allow the blank to fall out. The blanks are then placed in a shallow bowl, continually revolving, which forms part of the feed apparatus of the next machine. A pair of fingers descends at intervals, feels as it were among the blanks, and when, through the rotation of the bowl, it has picked up by their heads a sufficient quantity, it is again raised and allows the blanks to slide by their own weight down an inclined groove, finally delivering them in a horizontal position within reach of a pair of nippers. This automatic action of the fingers much resembles the action of a long-beaked bird, like a crane, dipping its bill into water, and then raising its head to allow the water to run down its gullet. The nippers hold the blank until it is inserted in a chuck by an advancing punch; here it is held while a tool turns the head, when it is brought within range of a small circular saw, which cuts the nick. Another finishing cut is then taken off the head; and the blank falls down ready for the next operation. This consists of cutting the thread, or "worming," as it is called. The blanks are put in another revolving bowl, and fingers, similar to those of the last machine, place them one by one in a chuck, the dies of which open to receive them. A diamond-pointed tool advances to make the point; and then another tool runs along the blank, cutting the thread in from 4 to 12 cuts according to the size of the screw. There are some quick "worming" machines which turn out seven screws in a minute.

All these automatic machines, improved from American models, with others of a less complicated character for drilling and tapping nuts, are made on the spot. There are upwards of two thousand machines under one roof, and the *coup d'œil* from a gallery, when all are working together, with the revolving trays full of glistening white or yellow brass screws, is very striking.

The tools for the various operations constitute an item of no little importance. The tools for turning down the heads are put into a kind of rest which traverses the edge of the grindstone, thus wearing it down evenly; when the stone is too much reduced in diameter for this purpose it is driven at a greater speed, and the sides are used for grinding the face of the punches that head the screw blanks. The diamond-pointed tools for cutting the thread are formed by turning an annular-shaped plate in a lathe to the proper section, and then dividing it radially, each segment forming a tool. The circular saws for cutting the nicks are first punched out of a steel plate, then screwed tight on a mandril about 14 dozen at a time, and forced vertically through ten dies to form the teeth. The saws are hardened in lard oil mixed with half suet, and then tempered to dark blue.

After the "swaff" is shaken out in oscillating trays, the screws are washed in water impregnated with soap and soda, and then polished in revolving barrels with saw-dust, which is dried on a plate kept hot by steam. The screws are then examined one by one to see that they are perfect, being fed up the bird's bill arrangement above described.

The wire-drawing forms a separate department. Be-

sides wire of different sizes for screws, spikes, "Paris-points," &c., bottling wire is also made.

In the nail mill, the Paris points are cut off from the wire, as it is fed in, headed and pointed at one operation, sizes up to one inch being turned out at the rate of 360 a minute. In the manufacture of spikes, the punch for making the head is propelled by springs, which are compressed by a cam, and then released at each stroke; two cutters worked by side cams on the same shaft cut off the wire and make the point. A steel finger then advances and knocks the finished spike out of the way to make room for the rest. Wire staples, three inches long, are turned out at the rate of a hundred a minute; the wire is pushed forward into the machine and cut off on a bevel to form the point; a hook rises, catches the wire, and draws it into the proper form, when the staple falls out complete.

About 2,000 hands, including women and girls, are employed in the screw works, wire mill, nail mill and bolt works.

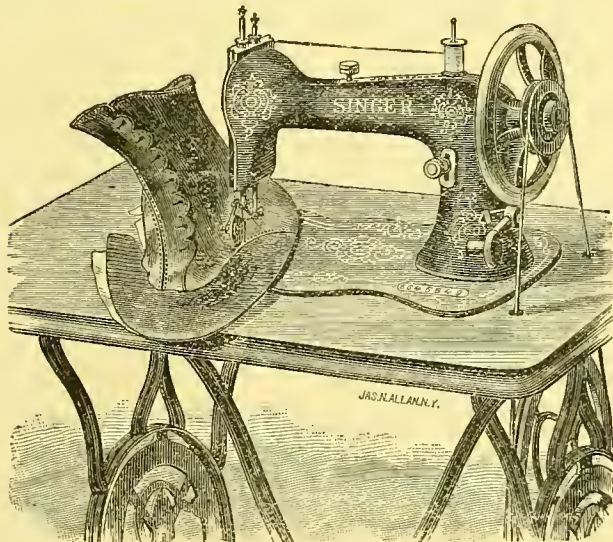
BUSINESS HURRY.

A MEDICAL contemporary publishes some sensible, and, we fear, only too opportune observations on what it calls the "habit of hurry" in modern business life. The modern man of business dresses in a hurry, he breakfasts in a hurry, he is in a hurry to catch his train, he is in a hurry to get out of it. It is with hurry that he proceeds to his office, in a hurry that he reads his letters, that he answers them, that he passes his day, and that he returns to the station to catch his homeward-bound train. All this precipitation, this constant, daily, perpetual being in a hurry is altogether gratuitous, and that it is the mere result of a bad habit. Business men cannot afford not to seem to be in a hurry. If one of them were to walk at a leisurely and deliberate pace to his morning train, and saunter through the day at the same rate, people would conclude that he had either very little business to transact, or that he was remiss or lethargic in transacting it. Hence, he begins by assuming a necessity for haste when none really exists; and, by degrees, habit becomes a second nature. That there is a good deal of truth in all this nobody who has observantly watched modern ways of life would dream of denying. But in truth the habit of bustle which is so marked a characteristic of our time is originally set up by conditions over which men have little or no control. In the case of men of business there are necessarily certain days in the year—"mail" days, for instance, or "balancing" days—when there really does exist a greater pressure of work than at other times. In these cases a "push" has to be made; and everybody concerned in getting the work done communicates his own feverishness to his neighbours. But such is the constitution of the human frame, such the mechanism of the human temperament, that what is done frequently has a tendency to establish itself as a something that is always done. It even becomes a pleasure to some men at last, as well as a necessity to do things quickly. Moreover, on the supposition that a man of business lives in the country, or in a semi-rural suburb—which is the case with the majority—it is only natural that he should linger among his household gods till the last possible minute. It is so much pleasanter to go round to the stable, to see how the azaleas are getting on, to count the coming rosebuds, to linger on the dewy gravel path, than to be in the noisy,

dirty, steaming City. Then suddenly the watch is taken out of the pocket to see what time it is, and in order to catch the City train he "must make a run for it." The day begun in that fashion probably is continued in that fashion. The train arrives at the place of departure five, ten, fifteen minutes late. He has an appointment, and he fears he will be late for it. Possibly, he is. Thereby everything is thrown out of gear, and for the rest of the day he is in the plight of Macauley's Duke of Newcastle, whom the historian described as losing half an hour in the morning and spending all the rest of the day in a futile attempt to catch it up. It is easy enough to see how it is that the "habit of hurry" is set up, but much more difficult to perceive how the setting up of it is to be avoided under the conditions of modern life, or how, when once set up, it is to be remedied. The whole of modern life, whether in the centres of pleasure or the centres of business, is dominated by the desire to do too much, and the consequent necessity of doing it with precipitation. It is a horrible habit—a detrimental habit; we had almost said a vulgar habit. The whole world is in a conspiracy to double, to treble the pace. And what is gained by it? Loss of temper, deterioration of manners, injury to digestion, increase of nervous diseases—these are the natural and inevitable results of that high pressure to which we nearly all expose ourselves and subject each other

THE SINGER MANUFACTURING CO.'S OSCILLATING SHUTTLE MACHINE.

THE Singer Manufacturing Company, not content with the many excellent machines they make, have recently brought out a new Oscillating Shuttle Machine.



The shape of it is somewhat similar to earlier models, having a flat bed, the overhanging arm, and straight needle bar. The action of the needle bar is obtained from an horizontal shaft revolving in the overhanging head, and terminated by a disc, to which the bar is attached by a link motion. This gives a vertically reciprocating action, and is not only more durable than the cam action generally used in earlier Shuttle Machines, but is capable of stitching goods on which the others have failed. The horizontal shaft is the only rotary motion on this Machine, all the

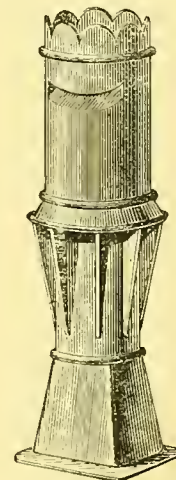
others being described by the title of the Machine, viz., Oscillating.

The under side of the Machine consists of a series of levers with ends recessed to receive conical screw bearings, which are fixed in position by lock-nuts. The advantages obtained by this method of construction are—1st, Absence of friction to the fullest possible extent, but with good bearings in every case; 2nd, Compensation for friction by means of the adjustable cone bearings; 3rd, Extreme light running and noiselessness. The shuttle race is circular, and contains a shuttle carrying either a circular or straight bobbin, and which oscillates to the extent of half the circumference of the race.

The Machine is made in several sizes, from the "Improved Family," for domestic or light manufacturing purposes, to the "Improved Manufacturing," suitable for manufacturers only, and is constructed either with a "four motion" or a "wheel feed." Like all the productions of the Singer Manufacturing Company, this machine is well made and carefully finished and is already a very marked success.

THE PARAGON CHIMNEY COWL.

MR. John S. Walford, of Hampton Street, Birmingham, has just placed upon the market the Paragon Chimney Cowl. It is so constructed that a down draught is absolutely impossible; A strong and continuous up-draught is created by the lower fans, to which there is no resistance whatever, on account of the complete absence of down draught; it can be easily and thoroughly swept, there being no impediment to the free use of the brush inside; whilst the upper surface of the wind cutters is kept clean by the action of wind and rain, the latter as well as the wind being



excluded from the chimney; being free from mechanism, there are no working parts to get out of order, no oiling is required, and no noise is made, which is frequently so very objectionable in those with revolving heads.

The "PARAGON CHIMNEY COWL," though moderate in price, is strongly made, very durable and thoroughly effective, and can be made to fit any existing pot if necessary. They have been tried in the most severe cases, and have been found perfectly successful where others have failed, which is particularly the case when fixed below higher buildings.

BRIBERY IN TRADE.

A TRADER whose business it is to purchase goods in bulk, and sell them profitably piecemeal, has two primary objects in view; first, to purchase in the cheapest market, and on the most advantageous terms; secondly, to sell at as enhanced a profit as possible consistent with honesty and uprightness. All other ends are subordinate to these; among them are, the avoidance of bad debts, the purchase of such goods as will command the most ready sale, the honesty of employes, a proper system of book-keeping, insurance against loss by fire or death, and a score of similar objects. But all these points, however carefully insisted upon, will be of no avail to arrest the ultimate downfall of a concern, if the paramount importance of discreet purchase be not the first consideration. This being so, it becomes the aim of every trader who is unable to make his own purchases, to employ a person upon whose honesty and probity he can absolutely rely. In order, therefore, to secure the services of men of spotless character, on whom the entire confidence of the house is to be placed, salaries should be given to this class of employé, not alone with exclusive reference to a special aptitude, but with a view to place them above the temptations to bribery and corruption; a shrewd trader will rather select a gentleman of high principle to purchase his goods than one who boasts he is up to all the "tricks of the trade."

Now although, in the abstract, honesty and dishonesty are as distinguishable as light from darkness, in practice it becomes more difficult than it appears at first glance to define where the gratuity, *douceur*, or whatever the "present" be called, ends, and where the "bribe" proper begins. Doubtless in many cases one of the parties only is open to blame, *e.g.*, a present may be given with an intent that it may act as a bribe, while it may be received in all simplicity as a friendly gift arising from a mutual recognition of regard; or, on the other hand, it may be given as such, but received as a hint "for future favours." In such instances it is not easy for a third person to arrive at an impartial conclusion without ascertaining the respective motives entertained by the parties concerned. Take the case of the Christmas hamper; no one would desire to stop the good old English custom of an interchange between friends of turkeys and fruit at that season, whether that friendship be of private or business origin; but, when we find one house alone considering itself called upon to dispatch to its business "friends" no less than fifteen cwt. of birds last Christmas, the question naturally presents itself, what reduction would have been made from these fifteen cwt. had only those friends received hampers who had no "future favours" to bestow, and what proportion were received by the buyers. No reasonable man can doubt, that the proper term to apply to these "presents" is bribes, perhaps thought necessary by the sender, but none the less bribes.

While on this subject, we must allude *en passant*, to that of bean-feasts. *Per se* these annual gatherings have their advantages, not the least among which is the almost equal footing between the employer and employed accepted for the occasion, and which acts as a kind of safety-valve whereby ill-feeling, discontent, and other symptoms of mutiny or strike are lessened, if not entirely set aside. But of late years it has become the custom for the men to send round printed circulars, asking subscriptions from those upon whom their employers confer the favour of their custom, with an ill-concealed intimation, that if they be not forthcoming, things may possibly run less smoothly for

the future. The best way to put a stop to these "begging letters" would be to consign them in every case to the waste-paper basket, not only as a resentment against a species of attempted terrorism, but as an intimation that if the men cannot afford their annual outing, it would evince more self-respect to forego the pleasure, than to accept it as a bribe.

Objectionable as these and similar practices are, and bordering on something more serious than a mere tax, they are to a greater or less extent understood, and at the worst they are a species of black-mail which one would gladly see abolished. They are borne with as is war, and other unavoidable evils, to be prevented, if possible, but if not, endured. But there is a kind of privateering, so to speak, growing up among us which extends far beyond the venial sins above alluded to, and which can only be characterised as plunder in its worst, because its most insidious form, viz., that of a buyer possessing the absolute confidence of an unsuspecting employer, abusing the position in which he is placed to his personal advantage, first by robbing the manufacturer of a commission, secondly, by rendering it necessary for the manufacturer to pass off inferior goods, and thirdly, by purchasing articles not required as a partial reimbursement of the bribe. This system of deliberate bribery seems to have permeated the carpet trade to a much greater extent than is generally known, and what was at one time looked upon as downright theft, is now being winked at as custom. In short the buyer has become the master, and the employer the servant.

It is perfectly monstrous to know that the buyer, a man who has probably to thank his employers for the very coat on his back, and who was once glad to work long hours for a pound a week, should be living at a rate which the members of the firm themselves can barely afford. Times are bad, business is dull, and orders come in slowly, expenditure is reduced to the lowest point consistent with discretion, and the firm draw diminished cheques for personal and domestic necessities, while to the buyer, clever rogue as he is, it is a matter of small concern, and does not prevent him purchasing an extravagant addition to his wife's ample wardrobe, that she may have the gratification of outshining the newest fashion adopted by her opposite neighbour.

This buyer is in all probability an exemplary and pious deacon of a suburban Bethel, or a peripatetic functionary of one of the many tin tabernacles which disfigure the outskirts of London, or he may perchance be even a confessing ritualist; but then, he never allows business to interfere with religion, and takes still greater care that the latter shall not meddle with business; although should his contemptible speculations bring upon him their justly-merited punishment, he will whine as an ill-used martyr who is misunderstood, and will probably seek for comfort and consolation from the priest—in absolution.

Meanwhile the question arises, what is to be done? These unprincipled rogues attaching themselves to every trade are swarming in our midst, for none of us are free from their influence in one form or another; and we not only know it, but almost tacitly admit our inability to cope with the evil. Is it that buyers are so badly paid in proportion to the greatness of their temptations that traders have to seek the cause of the evil in their own niggardliness, which, as by a natural law, brings its own punishment? or is it that they are wanting in sufficient courage to purge their houses of the thieves they have nourished, and to

expose them to the execration of honest men of business, or, still worse, is it that the evil has spread to yet higher places? If the junior partner of a large firm in London *confessed* to having received some £2,000 in bribes, what would he not have reluctantly admitted to under a severe cross-examination,

It is a mistake to consider this disgraceful sore an incurable disease. No one grudges the Christmas hamper which will so soon be on its way to every buyer; but there the matter should end, and firms should make it known that any one who received other presents should be immediately dismissed. It is very certain that presents to buyers eventually come out of the pockets of the firms for whom they purchase.

It is high time that traders, for the sake of their own dignity, should rouse themselves to the necessity of shaking off this incubus that, like Sinbad's "old man of the sea," has sat for so many years on the shoulders of their business, and should re-establish commercial relations upon a more secure and healthy footing, so that honesty and fair dealing may once again be considered the normal characteristic of the British trader.

BARGAINS.

IT may be taken for granted that the chief pleasure of the great majority of mankind would be the ability to spend money. Only a comparatively small section of the human race is truly economical, and they are for the most part regarded with disfavour by their fellow-creatures. It is natural that this should be the case in a world where almost everybody has something to sell, and where the measure of what is necessary for the ordinary comfort of life, in the case of each one of us, is no less than the measure of what other people possess. The number of articles which are advertised as "indispensable" is at present greater than the catalogue of books which were once described as "volumes which no gentleman's library should be without." Like the Irish plaintiff in a law court, who, when asked why he wept so bitterly, replied that until he heard his case opened by counsel he had no idea how much he had suffered, we are all ignorant of our destitute condition until enterprising inventors and tradesmen represent to us how forlorn existence must be unless we at once acquire a hundred articles in the uses of which we have to be instructed. There is little in this to be deplored. Every genuine contribution to the convenience and pleasure of life is worth having; and, so long as we do not make a toilsome business of seeking ease, and pass our barren hours in a painful pursuit of mere pleasure, we are legitimately entitled to spend money on the comforts and contrivances that sometimes ameliorate difficult conditions, and put us on better terms with ourselves and with people around us. It is not in London only that we have opportunities of acquiring those luxuries which grow with such enormous rapidity into necessities. In sea-side resorts and agricultural market towns, enterprising tradesmen gather together stupendous collections of convenience for multiplying the wants of their customers. In the narrow zig-zag High Street of a famous watering-place we may see a shop the windows of which display wondrous little domestic and culinary contrivances such as no lodging-house-keeper would be likely to use for the advantage of her tenants. The inference is that visitors buy patent milk warmers, transposing vegetable dishes, ingenious egg-boilers, fish-strainers, and

"*bain mares*" to take home with them. It is the same with the drapers' and mercers' shops. The "tremendous sacrifices" made at Brighton are only equalled by the "great sales of bankrupts' stocks" at Ramsgate, and the "reduction to less than cost price" at Herne Bay, Clacton-on-Sea, Pegwell Bay, and Twickenham Ait. The reason for this is of course obvious enough. The desire to multiply our possessions—checked, but not corrected, by the conviction that the habit of buying things which we only *think* we want is leading us into temptation—produces an almost insatiable longing for "*bargains*." Of course we all have heard the old saw—that "anything is dear if you do not need it;" but that was Benjamin Franklin's, the old square-toed precisian, who shammed a great desire for paternal amity and peace all the time that he was leading up to the American War of Independence. Nobody wants to live on water gruel, as he did, nor to adopt the code of ethics propounded by "Poor Richard;" what we want is to be able to obtain the comforts of life, to live well and dress well; and in these times anybody—especially any woman—who can contrive to do this on a very moderate income, with a family, must look round to see how to go to market to the best advantage. This is the way in which we persuade ourselves that we are wonderfully economical, all the time that we are indulging in the worst sort of extravagance by buying inferior articles at a pretended low price and when we do not want them, because they are offered to us as "*bargains*" and we are told that we shall never have such a chance again. As a matter of fact the real buyer of bargains is a person who is possessed of rare qualities—a person in passing a quiet unpretentious shop can see and appraise any really good article that lies in the window or on a back shelf, and can tell, by what seems to be an instinct, but is really a rapid combination of the observant and the estimating faculties, whether a thing is well made or of good quality, and is worth more than the price asked for it in relation to the markets of the day.

Such people seldom pay much attention to "*bargains*" forced upon their notice by emphatic bills in shop windows. They often carefully examine advertisements, because by means of such announcements they learn of new inventions or adaptations, and contrive by some proofs of keen discrimination to select the genuine notification of a good thing from amidst a dozen puffs of so many bad ones; but you never find them caught by "enormous sacrifices," "great bargains," or "unprecedented sales." They have discovered almost intuitively what many people spend half a life-time and a small fortune in learning—that "great bargains" too often mean sham and shoddy. There are, of course, instances in which surplus stocks, or job lots, or slightly unfashionable or unseasonable goods, are sold at a considerable reduction of price; but it requires a good judgment to discern which is a genuine sale of this kind, and which a mere pretext for getting rid of a confused jumble of inferior articles, the sweepings of the markets, blended with a few good lots in order to pass them off as genuine. Even in some "highly respectable" shops, remarkable means are used in order to capture the bargain hunter and make a good profit out of an alleged loss. "Ah, I find I've made a mistake here, ma'am," says the demure salesman—turning over the piece of goods just taken from amongst a heap; "this ought not to have been placed along with the others—it is quite a superior kind of goods; but as I told you the price, and we have only this piece left, I suppose I must let you have it. But why not take the

lot? I'll measure it off for you," &c., &c. Of course the customer closes with the "bargain" and goes home rejoicing, carrying a big parcel. It is a peculiarity of the bargain buyer never to be able to calculate *farthings*; so that "seven three-farthings" seems somehow to be less instead of more than seven *pence* when uttered glibly by a smart assistant, and is enormously below eightpence. Of course the farthing is supposed to represent the mere shaving of profit which is realized; and when a halfpenny is taken off a "remnant," the seller is supposed to be at just such a pecuniary loss as shows what store he sets on the patronage of the customer. As to adulterations—and the sale of "mixed fabrics" and inferior commodities of all sorts—the almost universal practice of selling makeshifts instead of the genuine article is one of the most appalling results of the mania for bargains; perhaps the most appalling result is the growing inability of a large number of people to distinguish good things from bad.

SHOP FRONTS.

THE arrangement and construction of our shop fronts, especially in London, have undergone considerable transformation within the last ten years. So rapid has been the change, and so little room does there seem to be for further development in the same direction, that we seem to have taken a leap from the old to the new order of things, where we seem, from a constructional point of view, destined to stand still. We have completely left behind the old high shop boards—often as much as three feet high—that used to jut out from our frontage walls, with ample space underneath, where beggars would occasionally crouch for shelter at night, the shop fronts glazed with sheet-glass and divided up with moulded bars about an inch wide into panes not more than eighteen inches by a foot in size, if so much, and the wooden shutters that used to be put up, one by one, every night, and stowed away in sheltered shutter-boxes by day. We have left all this behind as if it had belonged entirely to another age, instead of being a type of shop front in vogue during the greater part of this century, and we have adopted modes of construction by which every square inch of frontage on the ground floor, and often on the first floor as well, is occupied by plate glass, with the exception of the very slender amount of space necessary, and therefore grudgingly granted, to the piers that support the upper storeys.

The facilities afforded for this new treatment have sprung partly from the extensive manufacture of plate glass in large sizes, and partly from the increased use of iron in construction. We have learnt to employ rolled iron joists or built girders, as a matter of every-day convenience, in our most ordinary structures, and with these we support the front walls over our shops for considerable spans; we have also learnt to carry the ends of our girders upon cast-iron stanchions, so narrow upon the face as rarely to exhibit a width of more than 9 inches on the face, and often less, and these are sometimes treated ornamentally in metal, sometimes in wood, or are concealed behind stone pilasters. So much for the constructional facilities that have been mainly instrumental in producing our modern shop fronts. The cause of the change lies in the advertising tendencies of the age, the keenness of competition in trade, and the desire, ever growing, on the part of our shopkeepers, to excel one another in external show. The requirements of modern tradesmen with regard to their front shops are such as to tax the ingenuity of any architect who desires, for his own credit, to produce a design that shall combine utility with artistic effect, and many regard the task as a hopeless one, contenting themselves merely with satisfying the conditions of practical need. For example, suppose we have a building five storeys high above the pavement, with a frontage of 40 ft., in London, and that it is desired to build a two-storeyed shop front in the lower part, leaving the upper to be utilised for the purposes of residence, the height from the pavement to the glass in the first-floor storey will probably be about 25 ft.

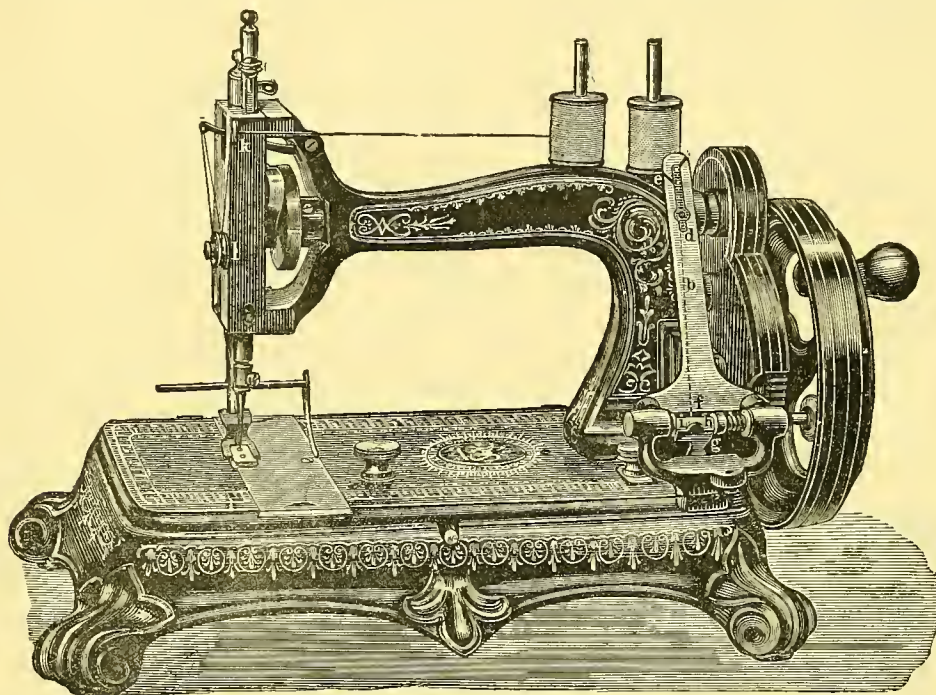
Above this level comes a girder, in this case about 2 ft. deep, which carries the front wall to the upper storeys. The party walls in the lower part would not be more than 18 in. thick, and each being central with the division line of property, this would leave a width of 9 in. on each side to be deducted from our frontage width of 40 ft. Such very slender slips of brickwork would never have sufficient strength to carry the ends of a girder loaded with the entire weight of the upper front wall, and therefore a cast-iron stanchion of E section, about 6 in. wide upon the face, and in depth equal to the width of the girder above it, is placed at each end against the extremities of the party walls, thus increasing the width to be deducted from the frontage for the purposes of support to 15 in. on each side. As this is sufficient for purposes of construction, the architect is obliged to rest contented with it. The shop front is permitted by the Metropolitan Building Act to project 10 in. beyond the frontage line; so that a pilaster of granite or stone, 15 in. wide, can be placed in front of the stanchion and the end of the party wall at each side of the shop-front, and carried as high as the under side of the girder, 25 ft. above the pavement level. Here a stone entablature with a projecting cornice can be attached to the front of the girder with bolts, so that it shall mask the girder, and at the same time look as if it were carried upon the capitals of the two end pilasters. The filling in to this huge framework of stone and iron mainly consists of plate glass. The doorway upon the ground floor forms no striking architectural feature, being usually treated in wood, and forming virtually a part of the fittings. The front may be divided up into widths of 13 ft. or 14 ft. by slender metal columns, some of which may give a partial support to the girder above, and some subdued panelling, chiefly in wood, may be introduced at the level of the first floor; but the general effect will be that of a large block of brick or stonework, supported upon two slender stone legs—legs that it is perfectly evident to the eye of any person at all acquainted with the elements of construction, cannot possibly sustain the superincumbent weight. We should tremble for them if we did not know them to be shams, and that the real work is done by the iron stanchions behind them. Above these is the stone entablature, not in one entire length like the beams at Stonehenge, but jointed together in portions probably about 7 ft. in length, and, in the eye of the deluded public, either sustained in the air by some occult contrivance akin to the mysteries of the black art, or else supported upon the upper edge of the plate glass below. It may be said that all this does not matter, and that so long as the practical wants of the owner are satisfied, the public is indifferent. But we might well ask, is it desirable to educate the public into an indifference to architectural effect? Should not such a conspicuous object as a shop front be made as attractive in its architectural treatment as its owner usually endeavours to make it by the display of his own goods for the purposes of business? We think this matter well deserving the attention of those engaged in erecting shop premises. It is quite clear, from the foregoing observations, that we have in the modern shop front, a case to which the stone treatment no longer satisfactorily applies, because the iron treatment has become not only possible, but necessary in the interests of business; then why not adopt an iron, or at least a metal treatment? If our large shop fronts were shown, by a suitable decorative treatment, to be what they are—metal structures—they would at once present an appearance of architectural propriety suggested by the known strength of the material, and if they were judiciously designed and carried out, the cost involved need be no greater than, if so great, as at present.

Many of our smaller shop fronts are very satisfactorily treated in wood, which is, of course, much cheaper than stone. A wooden boxed entablature over a shop front allows space inside for rollers for a revolving shutter and a sun blind, when required; but in these days of stout plate glass and watchful policemen, shutters are, at many establishments, considered unnecessary, and as for sun-blinds, they are liable to become rotten if rolled up after wet weather, and the plan adopted at some of the West End London shops of fixing the blind upon hooks placed over the front, and attaching the blind lath to private lamposts seems, where practicable, to be better.

OUR ILLUSTRATED SUPPLEMENT.

THE "Concordia" Family Machine, which we illustrate in our supplement, is a very excellently finished

which are coated with rubber and mounted on points, and the driving band is of steel instead of leather. The "Concordia" is also sold as a hand machine.



machine and possesses many very valuable improvements, including automatic self-stopping winder, double catch to loosen wheel, self-releasing tension, improved needle-clamp, shuttle lifting attachment, self-closing latch to table, &c. The stand is also of new and neat design, the pedals of

We illustrate above the "Princess" Lock-Stitch Hand Machine, also made by the manufacturers of the "Concordia," Messrs. Grimme, Natalis and Co., of Brunswick, for whom Mr. Charles Bradbury, of 37, Torrens-road, Brixton is agent.

IMPORTS OF SEWING MACHINES DURING NOVEMBER, 1883.

INTO LONDON.

Soundy and Hornbuckle	£110
Becker and Ulrich	£976
A. Hoffing and Co.	£200
Gellatly and Co.	£56
Van Oppen and Co.	£405
D. C. Thomas	£15
F. Stahlschmidt and Co.	£185
C. F. Parsons	£6
Hammond and Co.	£40
Horne and Crompton	£2,249
G. Meyer and Co.	£82
F. Bilot and Troude	£2
Mc Lean Brothers and Co.	£360
H. Loog	£2,050
Davis and Soper	£45
Millwall Dock Company	£569
W. H. Mead and Co.	£12
A. J. Humphrey and Co.	£35
T. H. Lee	£35
B. A. Grantoff and Co.	£3
G. Meyer and Co.	£37
Wheeler and Wilson	£2,913
Newcomb and Son	£12

White Sewing Machine Co.	£600
W. Milburn and Co.	£904
W. Balchin	£100
A. Henry and Co.	£7
Weatherley and Co.	£7

INTO LIVERPOOL,

R. Bulman and Co.	£3,145
R. Hunting	589 cases.
R. S. Daville and Co.	47 packages.
Olano, Larrinaga and Co.	25 packages.
J. L. Burridge and Co.	£17
W. Carden and Co.	£36 and 9 pkgs.
Richardson, Spence and Co.	£97
Staveley and Co.	£42 and 4 pkgs
P. Frank	£200
Mather and Platt	1 crate.
Cunard Steamship Company	£7
Dnnton, Messey and Co.	£32
Allan Brothers and Co.	£80
London and North Western Railway Co.	£87
Lamport and Holt	£63
Minspratt Brothers and Co.	£75
Carver and Co.	£62
F. Leyland and Co.	£12
Pickford and Co.	£75
Inman Steamship Company	£438
Singer Manufacturing Company	215 cases.
A. Bulman and Co.	1,136 cases.

THE VERTICAL FEED SEWING MACHINE.

Beyond dispute the only really Perfect Machine yet produced.

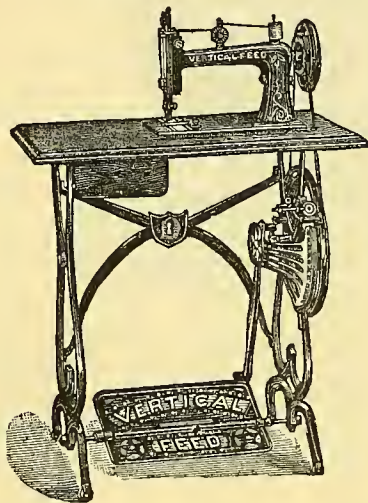
AWARDED THE
ONLY GOLD MEDAL

AT THE

SYDNEY & MELBOURNE

EXHIBITIONS,

In Competition with all the leading Machines.



This Machine differs from all others in that the work is fed from above instead of from below, thus leaving a smooth surface for it to run upon. Owing to the peculiarity of its Feed-motion, it will sew over any unevenness, and from the thinnest to the thickest materials without change either of stitch or tension, and without any assistance from the operator. Every variety of work can be done without Tacking, thus effecting a great saving of time and trouble. With each machine is given, without extra charge, a most complete set of simple and useful attachments, by means of which the operations of Hemming, Braiding, Quilting, Ruffling, Tucking, and Binding (so difficult to manage on any other machine), can be accomplished with astonishing ease and rapidity, and in the greatest perfection of style. The Shuttle holds a large amount of thread, and the Bobbins are easily and evenly wound by means of an automatic Bobbin-winder which accompanies each machine.

Prospectuses, together with Samples of the Work and every information, may be obtained at the Offices of the Company,

52, QUEEN VICTORIA STREET, E.C.
SOLE ADDRESS IN LONDON.

TO SEWING MACHINE TRADE.—Special offer of a quantity of Wheeler and Wilson's covers with locks 4s. 6d. each (sell 15s.) Walnut tops for foot machine stands, 5s. 6d., Wheeler and Wilson's stands.—Singer stands.—Britannia Company, Colchester.

SEWING MACHINE DEALERS.—Ornamental iron tables for refreshment rooms and private houses—in good demand.—Britannia Company, Colchester, makers of Lathes or Engineers' Tools, Fret Saws, &c.

HIRE AGREEMENT FORMS, 6d. per dozen, post free. Office of this Paper, 20, Wormwood Street, London.

TO SEWING MACHINE DEALERS.—We offer sewing machine stands—Wheeler Singer, or for hand machines. Lathes and fret was for amateurs. Lathes with buffing and polishing appliances for sewing machine repairing or bicycles, or for turning mangle rollers. Above are worth the attention of the trade. Terms on application to Britannia Sewing Machine Company, Colchester.

HIRE CARDS—Sixpence per dozen, post free.—Office of "SEWING MACHINE GAZETTE," 4, Ave Maria Lane, London, E.C.

WANTED IMMEDIATELY, by the Advertiser, a Partner with moderate capital, to extend old established Sewing Machine, Bicycle, Tricycle, and General Domestic Machinery Business, and to work several good patents.—Address, by letter only, to "Partnership," the Office of this Journal.

SEWING MACHINES—IMPORT AND EXPORT.

EMILE JAMES,
190, BLECKER STREET, NEW YORK, U.S.A.,

Importer of European Special Machines; Exporter of American Sewing Machines and Attachments of every description and all kinds of American Goods, Sole Agent for the Exports of different Co.'s.

JOURNAL OF DOMESTIC APPLIANCES

AND

Sewing Machine Gazette.

MANY pages of useless discussion are devoted in our contemporary *La Machine à Coudre* to the distribution of awards at the Amsterdam Exhibition. Much dissatisfaction is expressed that the English and American Sewing Machine Manufacturers have been fortunate in securing the lion's share of the honours. The journal above named is also very annoyed that the successful exhibitions of perfidious Albion and Yankee land should make known, by persistent advertising, to the inhabitants of the Fatherland the fact that they have secured so many medals. We feel sure we have only to make known to English and American Sewing Machine Manufacturers the wishes of *La Machine à Coudre* for them to at once oblige by hiding their light under a bushel. Nothing, we opine, would give them greater pleasure,

It seems to us very clear that there can be no element of unfairness in the Amsterdam awards, and that in certain points English and American machines do still take the lead. The jury, to decide alike on the merits of Home and Foreign Sewing Machines, was composed entirely of Germans; and we think it comes with very ill grace from a journal which professes to represent the German Trade

to cavil at its decision. But we suppose there never was, nor ever will be a jury to give contentment to all. There would be always some dissatisfied beings; and among these we must class the Editor of *La Machine à Coudre*, who, to relieve his feelings, endeavours, but unsuccessfully, to taunt us "with the license of ink."

WE note that the premises of Nasch's Button Hole Company, in Holborn, are closed. Is the machine not such a success as was anticipated? The invention seemed to us a good one, and likely to succeed, and the shop, situated in one of the busiest parts of London, was smart in appearance and had every sign of longer vitality than that accorded to it. Perhaps we shall hear of this machine later on, when Mr. Nasch's ingenious brain has rendered it even more perfect.

WITH reference to the new motor for sewing machines referred to in a late number, and which has since been extensively noticed in the Daily Press, amongst others *The Times*, *Telegraph*, &c., we are now able to state that a company is being formed with a strong directorate of highly influential and practical city merchants. We have seen a list also of the prominent houses who are connecting themselves with the Company, and have no doubt but that it will prove a gigantic success. We propose giving full details and illustrated particulars in our Special Issue of January next.

MESSRS. Grimme, Natalis & Co., of Brunswick, have recently brought out a novel Sewing Machine lamp. It can be attached to the stand by a clamp, and the light is thrown directly upon the work. It seems to us a very sensible idea.

MR. D. LEGOT, of Paris, was awarded a gold medal at the Amsterdam Exhibition, for the excellence of his straw-hat machines.

QUERY.

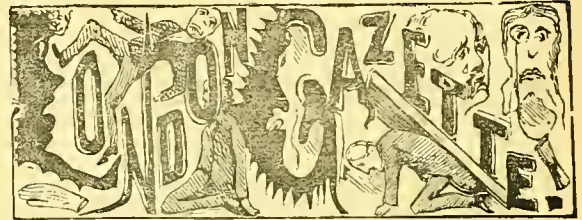
MESSRS. HUGGINS AND Co., 76, Linthorpe-road, Middlesboro', desire to know where they can obtain a shuttle for the Florence Sewing Machine. Will any of our readers kindly inform them?

OUR HIRE CARDS.

UNFORTUNATELY an error in the price of these occurred in the advertisement in our last issue. The price was stated to be sixpence a dozen instead of a shilling. As the mistake was our own, we have supplied them at sixpence, but we beg the trade to note that in future the price will be a shilling per dozen.

SEWING MACHINES AND THEIR MAKERS.

We have received the following name to add to this list:—
Eldridge Sewing Machine—Thomas Rhodes, 28, Crown-street, Halifax.



LIQUIDATIONS BY ARRANGEMENT.

Brown, C. and F., ironmongers, Broad-street, Lyme Regis, Dorset.
Cliff, S., ironmonger, High-street, Nantwich.
Parris, E., ironmonger, Market-terrace, Green-lanes, Wood Green, N.
Bayldon, J. T., ironmonger, 114, Church-street, Croydon.

THE SEWING MACHINE TRADE OF NEW ZEALAND.

THE following letter addressed to the *Sewing Machine Journal* of America will give our readers some idea of the trade of New Zealand:—

Nelson, New Zealand.

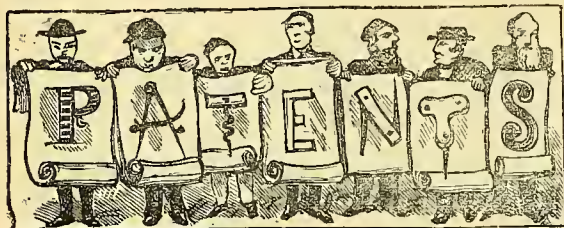
I have often thought of giving you some little account of the state of the sewing machine trade in this corner of the world, but there has been nothing of much interest to communicate. Nelson is a very small and quiet place, and the sewing machine business is not now and never has been very brisk. There was a time when small and cheap machines had considerable sale here, but such machines are now out of date. There is no demand for them. First-class machines are none too good here as in other parts of the world.

The Singer Company have an agent of their own here. They employ an express van, and I think are making a house-to-house call, selling machines on the instalment plan, at two and sixpence a week. I think they are sure to do the trade here. The "Davis" I hear very little of in this place, though I believe it enjoys an extensive sale in some parts of the Colonies. The "Wheeler and Wilson" has a pretty fair trade. It has changed hands, being now sold by Bunton and Co. Messrs. Wilkins and Field, who formerly handled the "Wheeler and Wilson" are doing a good business in machines made by Frister and Rossman, of Berlin, Prussia.

General trade in New Zealand is dull except in Auckland, where things are said to be rather lively at present. I see by the Australian news that there is also considerable depression in commercial circles in Sydney. There is an abundance of American goods in that market, while the market for English goods is constantly kept overstocked. How the sewing machine trade prospers there I have not learned of late, but think it is neither very good nor very bad.

To make solder drops, melt the solder and pour it in a steady stream of about one-eighth of an inch in diameter, from a height of two or three inches, into cold water. Take care that the solder, at the time of pouring, is no hotter than is necessary for fluidity.

THERE are many formulas for quick-drying furniture polish. The following will dry in a moderate time: Four ounces shellac is dissolved in two pints of alcohol; to this is added two pints linseed oil and one pint spirits of turpentine. When mixed, add four ounces of common ether and eight ounces of ammonia water. Apply with a sponge.



The following list has been compiled expressly for this Journal, by Mr. G. F. Redfern, Patent Agent, of 4, South Street, Finsbury, London, and at Paris and Brussels.

APPLICATIONS FOR LETTERS PATENT:—

- No. 4860. H. J. Haddan—a communication from L. Loicq, of Brussels, for improved burglar alarms. Dated October 12, 1883.
- „ 4902. E. Grube, Engineer, of Hamburg, Germany, for improvements in lamps. Dated October 15, 1883.
- „ 4904. W. Lawrence and G. Lawrence, both of St. Mary Axe, London, for improvements in apparatus for heating and cooling liquids. Dated October 15, 1883.
4909. A. G. Brooks—a communication from J. A. Dodge, of Somerville, and G. R. Marble, of Boston, both in the State of Massachusetts, United States, for improvements in skates. Dated October 16, 1883.
- „ 4910. W. Fletcher, of Faversham, Kent, Mechanical Engineer, for improvements in the construction of motive-power apparatus, especially devised for propelling tricycles, tramcars, and other road vehicles. Dated October 16, 1883.
- „ 4915. A. J. Boulton—a communication from S. B. Ryder, of Elizabeth, New Jersey, United States, for improvements in carpet cleaners. Dated October 16, 1883.
- „ 4919. W. P. Thompson—a communication from A. J. Lan, of Marseilles, France, for improvements in and relating to moderator lamps. Dated October 16, 1883.
- „ 4940. A. M. Clark—a communication from S. Lee, of Windsor, Vermont, United States, for improvements in nippers for cutting wire and other similar purposes. Dated October 17, 1883.
- „ 4944. A. C. Kennard, of Falkirk, Stirlingshire, North Britain, for a new or improved heating stove. Dated October 17, 1883.
- „ 4955. F. J. E. Clarke, of Ashburnham-road, Chelsea, London, for improvements in electric bells. Dated October 17, 1883.
- „ 4965. R. Jackson, of Leeds, for improvements in apparatus for heating and cooking food, such as dinners. Dated October 18, 1883.
- „ 4983. W. P. Thompson—a communication from N. Merrill, Lawyer, of New York, United States, for improvements in or appertaining to apparatus for driving tricycles; also applicable for driving other vehicles or the shafts of prime motors. Dated October 19, 1883.
- „ 4995. W. H. Parkin and D. Davis, both of Blackman-street, Southwark, London, Engineers, for improvements in velocipedes. Dated October 20, 1883.
- „ 4996. T. Knowles, of Turton, near Bolton, Lancashire, Cotton Spinner, for improvements in what are commonly called lawn mowing machines. Dated October 20, 1883.
- „ 5005. T. Smith, of Birmingham, for improvements in or connected with rollers applicable to the raising and lowering of window blinds and other analogous purposes. Dated October 20, 1883.
- No. 5006. A. J. Eli, of Theobald's-road, London, for improvements in the construction of velocipedes. Dated October 20, 1883.
- „ 5017. G. W. Smiley—a communication from T. J. L. Smiley, and C. H. Stombs, both of San Francisco, California, United States, for improvements in apparatus for extinguishing and trimming lamp wicks. Dated October 22, 1883.
- „ 5041. W. R. Lake—a communication from C. M. Banks, Mechanic, and St. John W. Mintzer, M.D., both of Philadelphia, Pennsylvania, United States, for improvements in and relating to mechanism for sewing or stitching button-holes. Dated October 23, 1883.
- „ 5052. H. J. Allison—a communication from G. Haseltine, of 247, Broadway, New York, United States, Counsellor-at-Law, for improvements in mechanical lamps. Dated October 24, 1883.
- „ 5056. Sir D. Salomons, of Broomhill, Tunbridge Wells, Kent, Baronet, for improvements in tricycles and other velocipedes or wheeled vehicles actuated by electricity, part of such improvements being applicable to other purposes. Dated October 24, 1883.
- „ 5067. W. R. Lake—a communication from E. Norton, and J. G. Hodgson, both of Chicago, Illinois, United States, for improvements in machines for use in the manufacture of sheet-metal cans. Dated October 24, 1883.
- „ 5097. G. Asher, of Balsall Heath, Worcestershire, for improvements in or addition to ash-pans, dust receptacles, or dust preventers for fire places and stoves. Dated October 26, 1883.
- „ 5101. R. G. Hodgetts, of Birmingham, Manager of Works, for an improvement or improvements in the manufacture of metallic bedsteads, cots, and couches. Dated October 27, 1883.
- „ 5102. G. Davies—a communication from F. Jackson, of San Francisco, California, United States, for improvements in the construction of stoves, ranges, ovens, and other appliances for cooking. Dated October 27, 1883.
- „ 5103. T. Taylor and J. Taylor, both of Oldham, Lancashire, for improvements in or applicable to electric gas lighters. Dated October 27, 1883.
- „ 5114. J. Legget, of Edinburgh, for an improvement in keys for locks. Dated October 29, 1883.
- „ 5115. A. B. Woakes, of 57, Harley-street, Cavendish-square, London, for a new or improved construction of rims for the wheels of velocipedes and other like vehicles. Dated October 29, 1883.
- „ 5121. T. Williams, junior, of Myddleton-square, London, Engineer, for improvements in mincing machines. Dated October 29, 1883.
- „ 5129. J. Millén, of Queen Victoria-street, London, for improvements in apparatus for producing steam or vapour alone or mixed with hot air, especially applicable for hot vapour baths, for refreshing stale bread, and for culinary purposes. Dated October 29, 1883.
- „ 5131. W. F. Thomas, of Holborn-viaduct, London, for a new or improved sewing machine. Dated October 29, 1883.
- „ 5143. E. Green, Fitter and Turner, in the employment of Messieurs E. Sheldon and Company, of Cannon Holloware Foundry, Deepfields, Staffordshire, Iron-founders, for improvements in the means employed for fixing handles and legs to cast metal utensils. Dated October 30, 1883.
- „ 5150. L. A. Groth—a communication from F. Schumacher, proprietor of the firm of C. Stickel, of Struttgart, Germany, for a new or improved needle and ap

paratus for sewing shoes and other leather goods. Dated October 30, 1883.

- No. 5155. E. P. Alexander—a communication from J. G. Dupuy, of Canderan (Gironde), France, for improvements in gas stoves. Dated October 30, 1883.
- „ 5157. J. H. Johnson—a communication from F. A. Troemé-Becker, of Paris, for improvements in or addition to saws. Dated October 30, 1883.
- „ 5161. F. B. Hill, of New-cross, London, Engineer, for improvements in apparatus for measuring and controlling the flow of liquids. Dated October 30, 1883.
- „ 5171. C. V. Boys, of 7, Dorset-square, London, for a new or improved differential driving gear for velocipedes and other machines. Dated October 31, 1883.
- „ 5186. W. R. Lake—a communication from A. Neustadt, of San Francisco, California, United States, for improvements in and relating to machines for sewing carpets. Dated October 31, 1883.
- „ 5191. H. Theaker, of Sheffield, Engineer, for improvements in machinery for serrating the edges of reaper knives, sickles, and similar articles, and for cutting files and rasps. Dated November 1, 1883.
- „ 5199. R. C. Thompson, of Brixton, London, and W. Spence, of Surbiton, Surrey, for an improvement in bicycles. Dated November 1, 1883.
- „ 5214. J. Harrington, of "The Enamel and Cradle Spring Works," Coventry, for a new or improved method of mounting and fixing the seats or saddles of bicycles and other velocipedes. Dated November 2, 1883.
- „ 5216. F. A. Wendt, of 24, North End, Croydon, London, for improvements in ventilating rooms and buildings and in the means for preventing smoke. Dated November 2, 1883.
- „ 5225. W. P. Thompson—a communication from C. E. Duryea, of Saint Louis, Missouri, United States, for improvements in spring seats or saddles, applicable for bicycles, tricycles, and other wheeled vehicles. Dated November 3, 1883.
- „ 5231. H. Beech, of Denton, Lancashire, Machinist, for improvements in sewing machines. Dated November 3, 1883.
- „ 5234. S. Fox, of 110, Gloucester-place, London, for improvements in apparatus for annealing wire and metal in other forms. Dated November 5, 1883.
- „ 5250. A. Martin, of Old Windsor, Berkshire, for improvements in lamps. Dated November 5, 1883.
- „ 5260. A. Gent and C. N. Spencer, both of New Radford, Nottinghamshire, Machinists, for improvements in tricycles. Dated November 6, 1883.
- „ 5270. T. Bauchop, of Alloa, Clackmannanshire, North Britain, for an improved ventilator. Dated November 7, 1883.
- „ 5281. J. S. Stevens, of James Works, Queen's-road, Battersea, London, and C. G. Major, of 34, Freke-road, Battersea, London, for improvements in spring hinges for doors. Dated November 8, 1883.
- „ 5284. E. Hoskins, of Birmingham, Manufacturer, for improvements in the frames for bed bottoms and metallic spring mattresses of bedsteads, ships' berths, and invalid furniture. Dated November 8, 1883.
- „ 5310. G. F. Marshall, of Battersea, London, Manufacturer, for improvements in filters. Dated November 9, 1883.
- „ 5313. L. L'Hollier, of Birmingham, Manufacturer of Perambulators, for improvements in connection with perambulators and the like. Dated November 10, 1883.
- „ 5314. A. B. Ball, of 35, Bennett-street, Sheffield, Cutler, for an

improved construction and manufacture of pocket razors. Dated November 10, 1883.

- No. 5320. J. N. Moerath, of Great St. Helens, London, Civil Engineer, for improvements in apparatus or appliances in connection with domestic and other fire-places, stoves, and furnaces. Dated November 10, 1883.
- „ 5327. E. Greenfield, of Bromley, Kent, for improvements in apparatus for cleaning knives and forks. Dated November 10, 1883.
- „ 5333. W. P. Kelley, of Mount Brandon, near Graigue, Coun Carlow, Ireland, Lieutenant in the reserve of Officers, for improvements in apparatus for retaining and releasing window-blind cords and the like. Dated November 12, 1883.
- „ 5342. A. J. Boulton—a communication from Boitiat-Bernot et Fils, of Pouilly-sur-Loire, France, for an improved screw bolt and nut for bedsteads and the like. Dated November 12, 1883.

Letters Patent have been issued for the following:—

- No. 1863. W. R. Lake—a communication from K. Grav, of Christiania, Norway, for improvements in washing machines. Dated April 12, 1883.
- „ 1946. A. J. Boulton—a communication from G. Hoyer and Cie, of Schonebeck, Germany, for an improved machine for cutting cloth or other fabric. Dated April 17, 1883.
- „ 1980. W. O. Aves, and G. Moss, of 46, Barbican, London, Mechanical Engineers, for improvements in gearing for regulating the speed of machinery, velocipedes, and other wheeled vehicles or carriages. Dated April 19, 1883.
- „ 1987. A. Rettich—a communication from Messieurs Schwintzer and Graff, both of Berlin, for an improved burner for oil lamps. Dated April 19, 1883.
- „ 1989. J. Fox, of 123, London Wall, London, Machinist, for improvements in sewing machines. Dated April 19, 1883.
- „ 2017. G. G. Tandy, of Clapham, London, for improvements in velocipedes. Dated April 20, 1883.
- „ 2069. W. P. Thompson—a communication from B. F. Flint, of Cincinnati, Ohio, United States, for improvements in locking apparatus for the doors of safes and other structures. Dated April 24, 1883.
- „ 2072. R. D. Jones, of Liverpool, for improvements in or appertaining to ash buckets and like articles for carrying material containing cinders or lumps which it is desirable to separate from the finer particles. Dated April 24, 1883.
- „ 2132. E. K. Heaps, of Ferrybridge, near Normanton, Yorkshire, Washing Machine Manufacturer, for improvements in washing machines. Dated April 27, 1883.
- „ 2140. G. J. Stevens and J. S. Smith, both of 85, Blackman-street, London, Engineers, for improvements in velocipedes, part of the improvements being applicable to other purposes. Dated April 27, 1883.
- „ 2158. E. A. Brydges—a communication from D. Grove, Sanitary Engineer, of Berlin, for improvements in steam cooking apparatus. Dated April 28, 1883.
- „ 2238. G. Nobes, of 27, Dudley-grove, Harrow-road, Paddington, London, Plumber, for an improved domestic fire-escape. Dated May 2, 1883.
- „ 2240. W. R. Lake—a communication from T. C. Robinson, of Boston, and E. B. Welch, of Cambridge, both in the state of Massachusetts, United States, for improvements in and relating to sewing machines. Dated May 2, 1883.

- No. 2232. T. J. Constaine, of 61, Fleet-street, London, Manufacturer of the Treasure Cooking Range, for improvements connected with open fire portable cooking ranges. Dated May 4, 1883.
- „ 2311. G. P. Lemprière, of Balsall Heath, Worcestershire, for improvements in apparatus for controlling and regulating the flow or passage of gas and other fluids, and in appliances connected therewith. Dated May 7, 1883.
- „ 2317. A. W. L. Reddie—a communication from J. Jonson, of New York, United States, for improvements in embroidery machines. Dated May 8, 1883.
- „ 2335. D. W. Sugg, of Vincent-street, Westminster, London, Engineer, for improvements in apparatus for lighting by gas. Dated May 8, 1883.
- „ 2360. W. S. Honeywood, of Aston, and G. T. Cashmore, of Handsworth, both in Warwickshire, for improvements in the adjustment of tricycle and bicycle saddles. Dated May 9, 1883.
- „ 2364. M. Grieve, of Leicester, Hosiery Manufacturer's Overlooker, for improvements in machinery for making knitted under-shirts. May 9, 1883.
- „ 2414. J. Matthews, of New-street-square, London, Lamp Manufacturer, for improvements in lamps for burning mineral, vegetable, or other oils, whereby the oil supplied from a reservoir below the burner is maintained at a constant level within the burner or within a subsidiary reservoir attached to the burner. Dated May 12, 1883.
- „ 2424. J. Ridge, of Sheffield, for improvements in the construction of teapots and similar vessels for preparing infusions for domestic purposes. Dated May 12, 1883.
- „ 2430. H. H. Lake—a communication from W., J. P., and J. G. Ahlert, all of San Francisco, for improvements in velocipedes. Dated May 14, 1883.
- „ 2459. T. Hale, of Claydon, Suffolk, for an improved domestic fire-escape. Dated May 16, 1883.
- „ 2487. L. A. Walters, of Newgate-street, London, Manufacturer, and J. Bradbury, of Braintree, Essex, Foreman, for improvements in oil cans, specially adapted for the use of bicyclists and tricyclists. Dated May 18, 1883.
- „ 2530. W. L. Wise—a communication from F. Martini & Co., of Frauenfeld, Switzerland, for improvements in embroidering machines. Dated May 21, 1883.
- „ 2541. H. J. Haddan—a communication from W. W. Clay, of Paris, Ontario, Canada, for improvements in knitting machinery. Dated May 22, 1883.
- „ 2615. W. R. Lake—a communication from J. F. Taberlet, of Paris, for an improved device for securing candles in candlesticks or the like. Dated May 25, 1883.
- „ 2654. S. Leoni, of 66, St. Paul-street, Packington-street, London, Gas Engineer, for improvements in burners applicable to gas cooking apparatus. Dated May 29, 1883.
- „ 2824. J. Darling, of Glasgow, for new or improved apparatus specially applicable for the cooking of eggs, but which may also be used for cooking other articles of food. Dated June 7, 1883.
- „ 2875. A. M. Clark—a communication from M. M. Raymond and D. Barton, both of Corry, Pennsylvania, United States, for improvements in baby jumpers. Dated June 8, 1883.
- „ 2926. P. C. G. Klingberg—a communication from A. F. Lundberg, of Stockholm, for improvements in lamp burners. Dated June 12, 1883.
- „ 2968. J. C. Bauer, of Bathurst, River Gambia, for improvements in spanners, the improvements being also applicable for other purposes. Dated June 14, 1883.

- No. 3073. G. J. Henderson, of 6, Drumsheugh Gardens, Edinburgh, for abstracting heat in larger quantities from stoves and other heating apparatus by passing a confined current of air over the hot surfaces, and for constructing an apparatus to effect this. Dated June 21, 1883.
- „ 3234. H. H. Lake—a communication from A. B. Lipsey, of West Hoboken, New Jersey, United States, for improvements in and relating to gas burners and in chimneys for use with the same. Dated June 29, 1883.
- „ 3241. H. H. Lake—a communication from A. B. Lipsey, of West Hoboken, New Jersey, United States, for improvements in and relating to gas burners. Dated June 29, 1883.
- „ 3387. H. E. Newton—a communication from E. Yäger, of Plauen, near Dresden, for apparatus for baking by steam. Dated July 9, 1883.
- „ 3399. F. Newman, of Ryde, Isle of Wight, Civil Engineer, for improvements in fastenings for doors. Dated July 10, 1883.
- „ 3463. R. A. Gilson and W. J. Booser, both of Union Street, Southwark, London, for improvements in bakers' ovens and ovens to be used for other purposes. Dated July 13, 1883.
- „ 3875. R. H. Brandon—a communication from H. S. Ward, of the United States, for improvements in the process of manufacturing sewing needles, and in the machinery employed for that purpose. Dated August 9, 1883.
- „ 4115. A. J. Hurtu, of Paris, Mechanician, for improvements in sewing machines. Dated August 25, 1883.
- „ 4181. C. A. Allison—a communication from G. W. Cottingham, of Louisville, Kentucky, United States, for improvements in ironing machines. Dated August 27, 1883.

PATENTS WHICH HAVE BECOME VOID :—

- No. 4137. G. Illston, of Birmingham, Manufacturer, for improvements in or additions to sewing machines. Dated October 12, 1880.
- „ 4149. G. W. von Nawrocki—a communication from E. Köhler, Chemist, of Cameny, Silesia, for improvements in lamps, and in lighting apparatus therefor, such improvements being applicable to pocket lights. Dated October 12, 1880.
- „ 4170. W. R. Lake—a communication from P. Brunet and V. Brossier, both of Paris, for improvements in carpenter's or joiner's planes. Dated October 13, 1880.
- „ 4177. E. Taylor, of Blackburn, Machinist, for an appliance to be used in conjunction with fire grates for consuming smoke and radiating heat. Dated October 14, 1880.
- „ 4196. W. Love, of Glasgow, for improvements in apparatus for heating and ventilating by means of oil or gas, and in part applicable to lighting apparatus. Dated October 15, 1880.
- „ 4204. W. R. Lake—a communication from O. Selleck, of New York, for improvements in embroidery apparatus for sewing machines. Dated October 15, 1880.
- „ 4237. J. Whitfield, Manufacturer, and H. W. Atkins, Commercial Traveller, both of Birmingham, for new or improved mechanism for setting or adjusting the position of swing looking-glasses and other swinging articles. Dated October 18, 1880.
- „ 4242. W. R. Lake—a communication from M. G. Wilder, of Brooklyn, New York, United States, Machinist, for an improved apparatus for regulating or controlling

- the flow of gas or other fluids. Dated October 18, 1880.
- No. 4257. E. C. F. Otto, of Peckham, London, for improvements in velocipedes. Dated October 19, 1880.
- „ 4293. W. R. Lake—a communication from A. W. Morton, of Brooklyn, New York, United States, for an improved apparatus for the combustion of gas, with or without other fuel, for cooking and heating purposes. Dated October 21, 1880.
- „ 4295. P. Langridge, of Eastbourne, Joiner, for improved apparatus for raising window sashes. Dated October 21, 1880.
- „ 4313. J. Warwick, of Manchester, Sewing Machine Manufacturer, for improvements in sewing machines. Dated October 22, 1880.
- „ 4315. N. Marshall, of Arkwright-street, Nottingham, Machinist, for improvements in knitting machinery. Dated October 22, 1880.
- „ 4318. J. F. R. Wood, of Newcastle-street, Farringdon-street, London, for improvements in or applicable to bicycles. Dated October 22, 1880.
- „ 4329. S. Rolland, of Pacy, France, Manufacturer, for improvements in apparatus for sharpening saws. Dated October 23, 1880.
- „ 4335. W. R. Lake—a communication from the Genuine Naxos-Emery Company, of Frankfort-on-the-Main, for improvements in the manufacture of artificial stone for grinding purposes. Dated October 23, 1880.
- „ 4361. J. C. Johnson, of Wednesbury, Manager of Tube Works, for new or improved machinery for welding gas, steam and water-pipe fittings. Dated October 26, 1880.
- „ 4386. J. R. Dry, of Oriental-street, East-india-road, London, for an improved cowl. Dated October 27, 1880.
- „ 4395. C. A. Brodribb, of Robertson-street, Hastings, for improvements in gas stoves. Dated October 27, 1880.
- „ 4396. A. C. Herts, of Bloomsbury, London, for improvements in carpet sweepers. Dated October 28, 1880.
- „ 4429. B. Talbot, of Wellington, Shropshire, Iron Manufacturer, for new or improved machinery for coiling and bundling iron and steel and other metallic rods and wires. Dated October 29, 1880.
- „ 4432. W. Hillman, of Coventry, Machinist, for improvements in velocipedes. Dated October 29, 1880.
- „ 4435. C. M. Westmacott, of 11, Bridge-street, Westminster, London, for a new or improved stove suitable for ordinary apartments, applicable also for cooking purposes and for heating one, two, or more apartments besides that in which it is placed, and also halls and public buildings. Dated October 30, 1880.
- „ 4444. H. H. Lake—a communication from Florentine W. Pelton, of Boston, Massachusetts, United States, for improvements in electric gas-lighting apparatus. Dated October 30, 1880.
- „ 4447. T. F. Best, of Birmingham, Merchant, for improvements in velocipedes. Dated October 30, 1880.
- „ 4498. R. Steel, Manufacturer, C. H. Binns, Collector, A. Steinmetz, junior, Stone-cutter, C. A. Spring, Manufacturer, and W. A. Nichols, Attorney-at-Law, all of Philadelphia, Pennsylvania, United States, for sewing machine and other treadles. Dated November 3, 1880.
- „ 3887. R. Knott, of Bolton, Chemist, for improvements in machinery or apparatus for cleaning knives. Dated October 7, 1876.
- „ 3998. W. R. Lake—a communication from The American Screw Company (Incorporated), of Providence, Rhode Island, United States, for improvements in

machinery for shaving and nicking screws. Dated October 16, 1876.

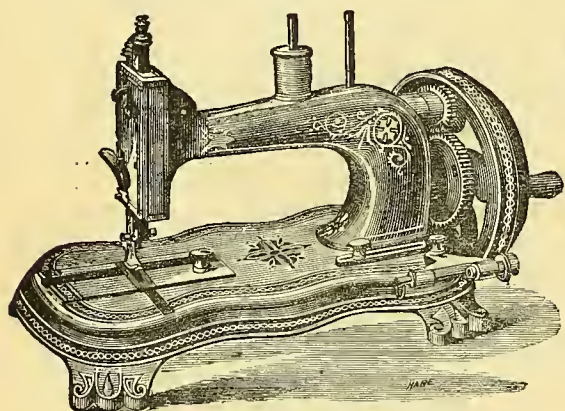
- No. 4050. H. J. Brookes, of Smethwick, Manufacturer, for improvements in machinery for manufacturing metallic nuts. Dated October 16, 1876.
- „ 4122. J. Grout, of High Town, Herefordshire, for improvements in apparatus for warming or keeping warm food for infants. Dated October 24, 1876.
- „ 4250. W. B. Blood, of Dublin, Gentleman, for improvements in tricycles. Dated November 3, 1876.

SPECIFICATIONS PUBLISHED DURING THE MONTH.

Postage 1d. each extra.

	1883.	s. d.
„ 311. H. Van der Weyde, tricycles	0 2	
„ 369. G. F. Grimston and A. S. Rower, gas burner apparatus	0 6	
„ 796. W. J. Spurrier, construction and arrangement of parts of velocipedes, &c.	0 10	
„ 825. W. Blakely, apparatus for irrigating gardens with waste water from households	0 2	
„ 874. J. B. Goodwin, apparatus to be attached to candles for the prevention of guttering and for ensuring a steady light	0 2	
„ 902. G. P. Smith, velocipedes	0 2	
„ 936. E. P. Alexander, sewing machines, &c.	0 2	
„ 971. T. H. Collins, window fasteners	0 6	
„ 983. F. Johnson, knitting machinery	0 8	
„ 988. H. and C. F. Longden, apparatus for heating by hot water	0 2	
„ 993. J. Orme, wheels of velocipedes or other vehicles having spider wheels	0 2	
„ 1003. L. A. Groth, attaching a handle to a stone to enable it to be used for ironing	0 2	
„ 1009. J. Warwick, sewing machines, &c.	0 6	
„ 1012. R. Cunliffe & J. Croom, lubricating the axles of perambulator, invalid carriage, bicycle and other wheels	0 2	
„ 1050. W. Morgan-Brown, bicycles	0 2	
„ 1056. H. and T. Vaughan, locks and latches	0 2	
„ 1064. W. Brierley, apparatus for heating air for warming buildings, &c.	0 6	
„ 1072. T. S. G. Kirkpatrick, apparatus for basting meat	0 2	
„ 1092. E. G. Brewer, apparatus for the preparation of decoctions or extracts from tea, coffee, &c.	0 6	
„ 1103. T. Wrigley, manufacturing cage meat safes	0 2	
„ 1114. W. Cook, egg-cups	0 2	
„ 1124. A. Burdess, mechanism for controlling the steering gear of, and applying brake power to, velocipedes	0 6	
„ 1129. J. D. Ellson, velocipedes	0 6	
„ 1134. H. T. Davey, velocipedes	0 2	
„ 1154. R. E. Cox, smokeless stoves, &c.	0 6	
„ 1162. J. H. Adams, bicycles, &c.	0 6	
„ 1164. R. E. Sawtell, manufacture of handles of fish and other table knives and forks	0 6	
„ 1195. J. McLean, steam smoothing-iron for laundry purposes	0 2	
„ 1200. H. Markham and T. Brettell, lamps for velocipedes, &c.	0 2	
„ 1203. H. H. Lake, manufacture of files, taps, dies, &c.	0 6	
„ 1213. T. Bradford, apparatus or fittings to be applied to baths	0 2	
„ 1231. M. A. Weir, automatic musical instrument	0 6	
„ 1239. S. Low, junior, fresh air injector or down-cast water-tight ventilator	0 6	
„ 1246. F. C. Glaser, apparatus for darning fabrics and for producing a running stitch thereon	0 4	

No. 1251.	J. Hall, driving apparatus for tricycles, &c. . .	0 2	No. 1424.	H. Walker, handles of knives and forks, and means of securing blades of knives and forks to their handles. . .	0 6
„ 1261.	T. Sidaway, all steel open socket shovels . .	0 4	„ 1447.	W. B. Wicken, regenerative gas burners and lamps . .	0 4
„ 1279.	J. Darling, cooking utensils for cooking eggs, &c. .	0 2	„ 1449.	B. J. B. Mills, ironing machine . . .	0 6
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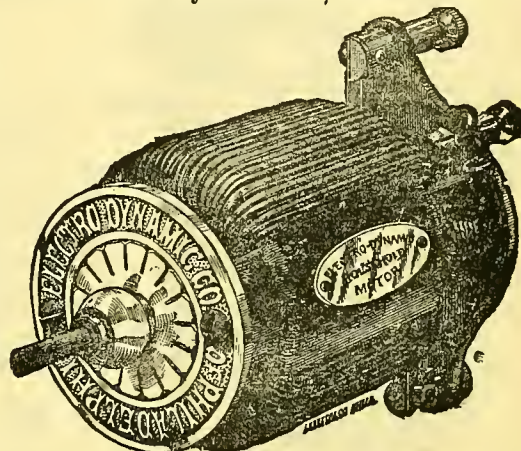
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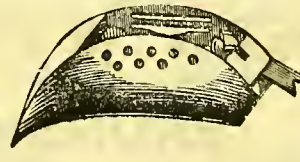
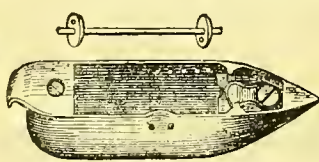
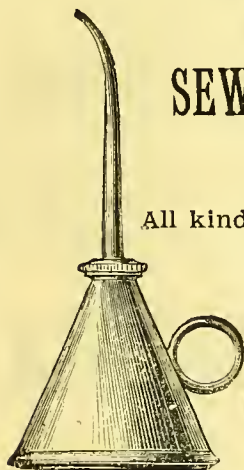


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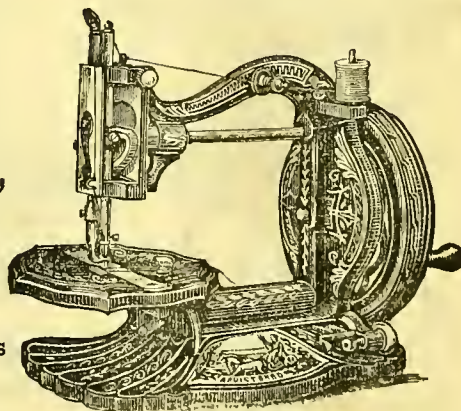
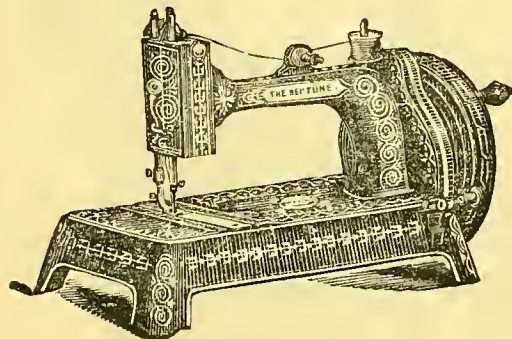
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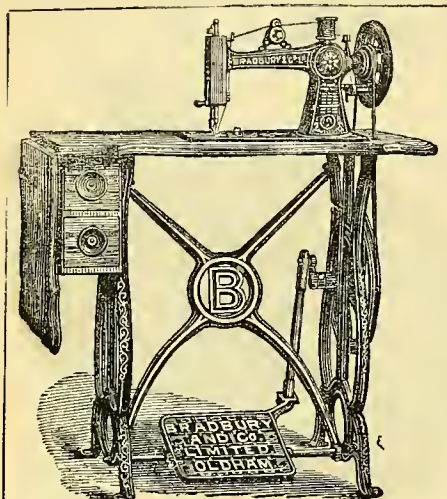
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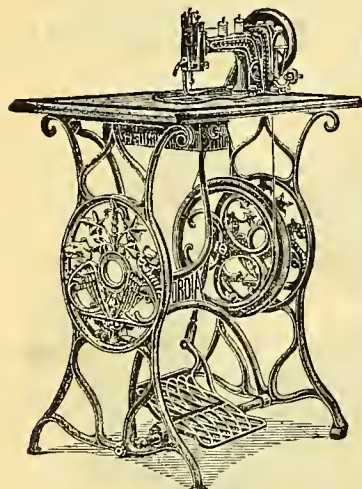
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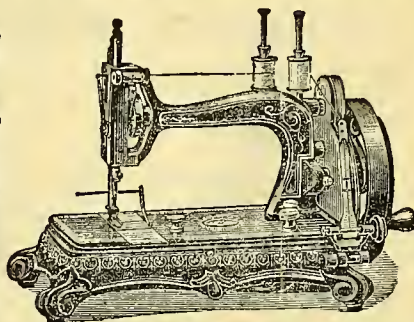
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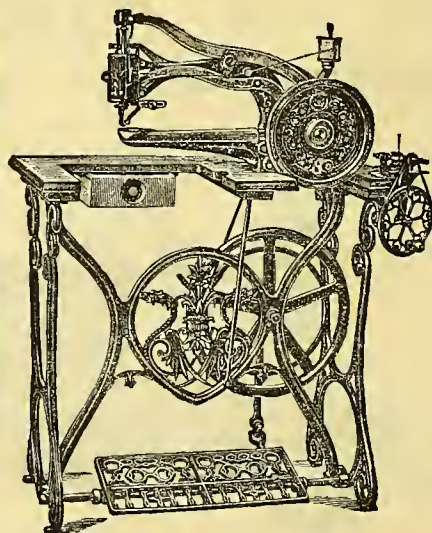
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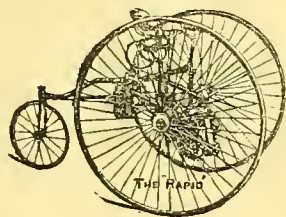
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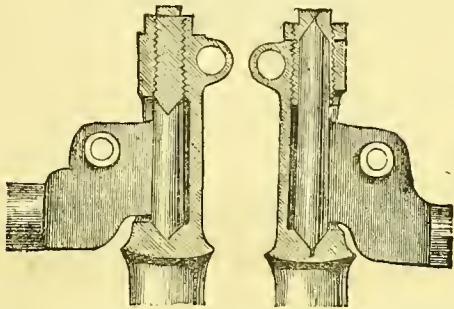
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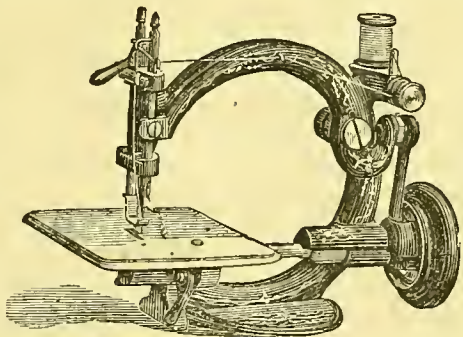
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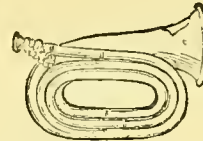
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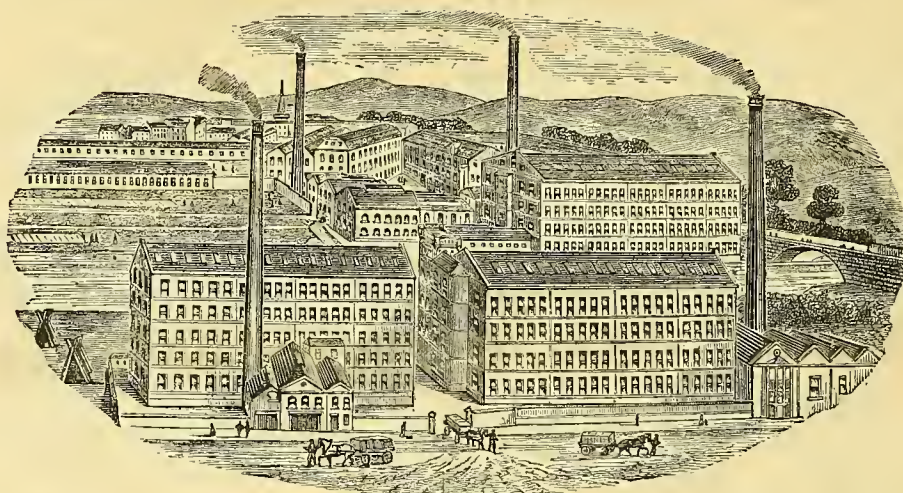
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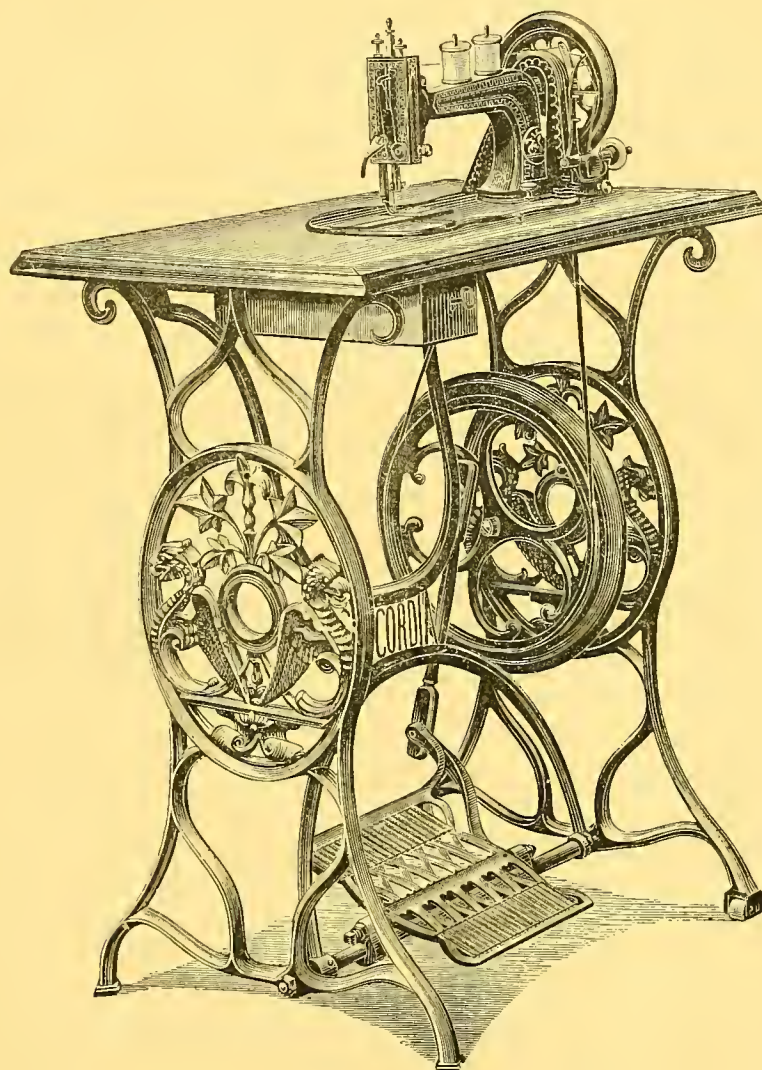
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